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ABSENTEEISM:

THE INFLUENCE OF POTENTIALLY CONTROLLABLE

FACTORS ON ABSENCE BEHAVIOUR

by

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ABSTRACT

An earlier study correlating overtime with absenteeism had been conducted at Gabriel SA (Pty) Ltd, a mechanical engineering company, in 1988. One result of the study was a heightened awareness of increasingly unacceptable absence behaviour within the company. An amendment to the Main Agreement for the Motor Industry (1988) and the introduction of a negative incentive bonus scheme presented further opportunity for absence research.

The aim of the study is to propose guidelines for the control of excessive absenteeism based on the study of factors which may influence absence behaviour patterns. The following three objectives were formulated to meet this aim. Firstly, to determine whether the introduction of sick payment from the first day of sickness absence, instead of from only the third day, for Gabriel SA (Pty) Ltd hourly paid employees with less than five years service duration, influenced the sickness absence pattern of these employees. The sickness absence pattern was described using the following measurements: Sickness Absence Rate, Sickness Absence Frequency Rate and One Day Sickness Absence Frequency Rate. Secondly, to determine whether any change of absence behaviour by Gabriel's hourly paid population occurred following the implementation of a penalty system that influenced each employee's annual bonus. The bonus based on each employee's absence record for the financial year from 3.10.1988 to 1.10.1989, compared to the previous twelve

months, when no penalty system existed. The measurement Gross Absence Rate, aggregated per financial year, was used for each employee. Thirdly, to determine whether there were significant differences in the distribution of potentially determining variables between worker groups with high Gross Absence Rates and those with low Gross Absence Rates, for the period from 3.10.1988 to 1.10.1989.

The study population consisted of permanent hourly paid employees at Gabriel SA (Pty) Ltd, in the employment of the company between 31 August 1987 and 1 October 1989, from which three sample populations were selected. Sickness absence information and population profile data were extracted from Confidential Personnel Records for each company employee, and data analysed using Statgraphics: Statistical Graphics System By Statistical Graphics Corporation, Version 4.0 (1989).

The results showed significantly higher levels of absenteeism following the introduction of sick payment from the first day of sickness absence, where previously employees with less than five years service duration received sick payment from only the third day of sickness absence. In contrast the "comparison of trend" sample population group, who experienced no change in sick pay benefits, had no significant increase in absence behaviour over the two year study period.

The introduction of a penalty system, using a negative incentive bonus scheme based on individual absence behaviour, did not result in a significant reduction in the number of absence days

taken in the company. When employees with less than five years service duration were excluded from the sample population, a decrease in the aggregated Gross Absence Rates was experienced, but not found to be significant. The negative incentive bonus scheme was discontinued after one year.

Lastly, two-sample analysis conducted on the sample population of fifty employees with the highest Gross Absence rates showed that they were significantly younger, were employed with the company for a significantly shorter period of time, worked significantly fewer weeks of excess overtime and were composed of a significantly higher proportion of unskilled workers than the fifty employees with the lowest Gross Absence Rates. Number of dependents was shown to be proportionately the same for the two groups. When the female employees were removed from the two groups, the male sample population with the higher Gross Absence Rates was again significantly younger and employed for a significantly shorter period of time than the male sample population with the lowest Gross Absence Rates. However, the variables number of weeks excess overtime worked, job grade, and number of dependents were, for males only, not found to show significant differences in their distribution. As a general conclusion these results indicate that older, longer serving employees maintain lower absence rates.

The study was concluded by discussing whether the company would benefit from an absence control programme or not.

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CHAPTER 1

INTRODUCTION

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INTRODUCTION

Absence behaviour in South African companies is an area of concern for management (van der Merwe and Roux, 1988), and an area that often deserves more attention than is given to it. A study correlating overtime with absenteeism had been conducted at Gabriel SA (Pty) Ltd in 1988, covering the period from July 1986 through to June 1988. One result of the study was a heightened awareness of unacceptable absence behaviour at Gabriel SA (Pty) Ltd. For South Africa, a Gross Absence Rate of over five percent indicates that absenteeism is becoming a problem and needs to be investigated, especially if the Absence Frequency Rate is higher than one incident per person per annum, and a Gross Absence Rate of over ten percent is serious (Mets, 1986). The Gross Absence Rate at Gabriel SA (Pty) Ltd rose above five percent for eight of the months in the second twelve months of the study, compared to only one month for the first twelve months. A negative incentive control method was introduced by company management in October 1988. This study proposes to investigate hypotheses surrounding the introduction of this control method, as well as the effects of an amendment to legislation controlling sick pay benefits in the Motor Industry, and finally the influence of various variables on absence behaviour.

1.1 Purpose of Study

The study on "Absenteeism: The correlation of overtime with absenteeism and how it influences productivity" (Winfield, 1988), conducted in 1988 on the hourly paid employees of Gabriel SA (Pty) Ltd had shown that employees with longer than five years service duration were taking approximately twice as many sickness absence hours per person (and almost three times as frequently) than those with less than five years service duration. At the time of study, employees with less than five years service duration qualified for sick pay only from the third day of sickness absence, compared to those employees with over five years service duration who were paid from the first day of sickness absence. The Sickness Absence Frequency Rate of employees with less than five years service had a highly significant correlation ($r = 0.692$; $p < 0.001$) with Overtime Rate, compared to the less significant relationship ($r = 0.520$; $p < 0.05$) for employees with over five years service duration. The positive correlation which existed for both Gross Absence Rate and Sickness Absence Rate with Overtime Rate for the whole hourly paid population was also significant. The Gross Absence Rate rose above five percent per month on only one occasion in the first twelve months of the study and on eight occasions during the second twelve months of the study, indicating increasingly unsatisfactory absence behaviour in the company. The concomitant increase in mean Sickness Absence Frequency Rate from 1.8 to 2.5 for the first and second years respectively supports further investigation of the absence problem.

Other avenues of research presented themselves when completing this earlier study. Firstly, an amendment to the Main Agreement for the Motor Industry (1988), (see Appendix A), applicable from 29.08.1988 stated that all hourly paid staff would qualify for paid sick leave from the first day of absence on sick leave. Previously at Gabriel SA (Pty) Ltd, employees with less than five years service only qualified for sick pay from the third day of sick leave. This more favourable sick pay policy might now negatively influence the sickness absence behaviour of those employees with less than five years service duration.

Secondly, the terms and conditions for the company's General Incentive Bonus Scheme (see Appendix B) were adjusted for the 1988/1989 period. Prior to October 1988, absenteeism made up one of eight qualifying key criteria for the company Productivity Index, which determined the bonus payouts. In an effort to improve the company's absenteeism behaviour, absenteeism was removed as a qualifying criterion from the Productivity Index for the whole company, but the individual's absenteeism record would now influence the bonus he or she would receive. Once an employee's rate of absenteeism exceeded 3% for the bonus year (that is more than seven days or sixty-three hours absent for the year) that employee's bonus would be reduced by the full percentage for which he or she was absent. This would be described as a negative incentive control programme (Steers and Rhodes, 1984).

Thirdly, management expressed the desire to study the significance of various variables on absence behaviour. Two

sub-groups of the hourly paid population were identified to compare the influence, if any, of the following variables: age, service duration, number of weeks excess overtime worked, job grade and number of dependents. A proportion of the population with the highest Gross Absence Rates per year, and an equal proportion of the population with the lowest Gross Absence Rates per year was selected as the two study groups.

1.2 Aim of Study

The aim of this study is to propose guidelines for the control of excessive absenteeism based on a study of factors which may influence absence behaviour patterns.

The study was conducted using data obtained from Gabriel SA (Pty) Ltd. Gabriel SA (Pty) Ltd is situated in Retreat, Cape Town, and manufactures shock absorbers, struts and gas springs. The last few years have seen a steady incline in the company's Gross Absence Rate. The cumulative twelve month moving average for the two consecutive years under study increased from 5.3% to 7.3%. The study period from 31 August 1987 through to 1 October 1989 was determined by the date given for amendment to the Main Agreement for the Motor Industry (1988) and by the introduction of the negative incentive bonus scheme in the company on 3 October 1988.

1.3 Formulation of Hypotheses

1.3.1 Hypothesis 1

The introduction of sick payment from the first day of sickness absence as opposed to payment from only the third day of sickness absence, effective from 29.08.1988, for employees with less than five years service duration tends to increase the number of sick days taken.

1.3.2 Hypothesis 2

Gabriel SA (Pty) Ltd introduced a penalty system that influenced each employee's annual bonus, where once an employee's rate of absenteeism exceeded 3% for the bonus year (taken from 3.10.1988 through to 1.10.1989) that employee's bonus would be reduced by the full percentage for which he or she was absent. Thus, the second hypothesis states that the introduction of this penalty system, based on individual absence behaviour, will significantly reduce the number of absence days in the company.

1.3.3 Hypothesis 3

A sample population of fifty employees with the highest Gross Absence Rates will show a significantly different pattern of variables, such as age, duration of service, number of weeks excess overtime worked, job grade and number of dependents, from a group of fifty employees with the lowest Gross Absence Rates over the financial year from 3.10.1988 through to 1.10.1989.

As it is known that new employees with less than one year service duration are likely to show a high turnover rate (Price, 1977; Wanous, 1980) and an abnormally low absence pattern (Hill and Trist, 1955), only employees with longer than one year service duration were selected for this part of the study.

1.4 Study Objectives

1.4.1 Objective 1

To determine whether the introduction of sick payment from the first day of sickness absence, for Gabriel SA (Pty) Ltd hourly paid employees with less than five years service duration, influenced the sickness absence pattern of these employees. The sickness absence pattern will be described using the following measurements:-

Sickness Absence Rate

Sickness Absence Frequency Rate

One Day Sickness Absence Frequency Rate.

1.4.2 Objective 2

To determine the absence behaviour by Gabriel's hourly paid population following the implementation of a penalty system that influenced each employee's annual bonus, based on each employee's absence record for the financial year from 3.10.1988 to 1.10.1989, compared to the previous twelve months, when no penalty system existed. The measurement Gross Absence Rate, aggregated per financial year, will be used for each employee.

1.4.3 Objective 3

To determine whether there are significant differences in the distribution of potentially determining variables between worker groups with high Gross Absence Rates and those with low Gross Absence Rates, for the period from 3.10.1988 to 1.10.1989.

1.5 Definition of Terms

Absence from Work

The non-attendance of an employee, when he is expected to work, for any reason at all, medical or other (Mets, 1986).

Gross Absence Rate - GAR (%)

Total hours of absence expressed as a percentage of potential normal working manpower hours per month. The total hours of absence include certified sick hours of absence, uncertified sick hours of absence, unauthorised hours of absence, incomplete shift hours lost and working hours lost due to accidents. Leave authorised in advance, for example, annual leave, study leave, military leave and maternity leave, and late arrival at work are not included for the calculation of Gross Absence Rate.

The number of normal working manpower hours is calculated by manpower strength per month multiplied by the number of working hours in the month. The Full Time Equivalent is used for manpower strength, for example, person employed for half of period worked in hours is equivalent to half a person.

$$GAR = \frac{\text{Total hours of absence per month}}{\text{Normal manpower hours per month}} * 100\ \%$$

Sickness Absence Rate - SAR (%)

Total number of sickness absence hours, expressed as a percentage of normal working manpower hours per month. The total number of sickness absence hours includes the certified sick hours and the uncertified sick hours.

$$SAR = \frac{\text{Total sick hours of absence per month}}{\text{Normal manpower hours per month}} * 100\ \%$$

Certified Sick

A medical certificate has been produced to explain the reason for absence. Absence measured in working hours.

Uncertified Sick

A medical certificate has not been produced to explain the absence, but illness is given as the reason for absence. Absence measured in working hours.

Unauthorised Absence Rate - UAR (%)

Total number of absence hours not certified as sickness absence, nor as uncertified sickness absence, but rather absence from work was taken without permission for personal reasons. It is expressed as a percentage of normal working manpower hours per month.

$$UAR = \frac{\text{Total unauthorised hours of absence per month}}{\text{Normal manpower hours per month}} * 100\ (\%)$$

The absence records available from Gabriel SA (Pty) Ltd measured absence in terms of hours, hence all rates are given using hours instead of days absent. Hammer and Landau (1981) describe hours absent as an exact measure of duration. Days absent is not clearly defined in research reports and could either be an over- or under-estimation of the absence period.

Sickness Absence Frequency Rate - SAFR

The total number of new sickness absences per month or per year, computed for the hourly paid employees as an incidence rate per employee.

$$SAFR = \frac{\text{Total number of sickness absence incidents over period}}{\text{Number of employees for that period}}$$

One Day Sickness Absence Frequency Rate - ODSAFR

The total number of one day only sickness absences per month or per year, computed for the hourly paid employees as an incident rate per employee.

$$ODSAFR = \frac{\text{Total one day sickness absence incidents per period}}{\text{Number of employees for that period}}$$

Overtime was excluded for the computation of these percentage rates. Absences for military training, study, annual leave and all other absences authorised in advance were also excluded. Absence periods of longer than fourteen days were included, as well as absence periods resulting from work injuries.

Overtime

Overtime is the number of hours worked over and above the normal forty-five working hours per week, per person, calculated on a monthly basis for the entire hourly paid workforce. The overtime rate is determined by calculating the number of overtime hours worked as a percentage of the normal manpower hours per month. A normal working day was taken as nine hours, Monday through to Friday, totalling forty-five hours per week.

$$\text{Overtime Rate} = \frac{\text{Overtime hours}}{\text{Normal manpower hours per month}} * 100\ \%$$

It is a condition of employment that employees will work overtime when needed. Employees are paid at the rates prescribed in the Main Agreement for the Motor Industry. Employees are not normally asked to work more than three hours overtime on any one day or more than ten hours overtime in any week. When excess overtime is required to be worked by the Industrial Council Rated employees an Exemption Certificate from the Industrial Council is applied for. For the Non-Industrial Council Rated employees, e.g. storemen, an Exemption Certificate is obtained from the Department of Manpower for excess overtime.

Excess Overtime Week

This is defined as a week during which overtime in excess of ten hours is worked by an employee. This measurement was used in the study, as it was the most reliable from available data.

The above rates can be calculated for a group of employees or for an individual employee, depending on the study requirements.

General Incentive Bonus - GIB

All permanent monthly paid and hourly paid employees who are not on another incentive bonus scheme in the company are eligible. The GIB has been established to give Gabriel employees an incentive to further their own and the company's growth and productivity. Eight key criteria related to productivity at Gabriel have been identified. Each criterion is weighted and constitutes a portion of the total Productivity Index (PI). The total Productivity Index is obtained by totalling up the scores on the individual criteria. Maximum payouts based on the level of performance and Productivity Index have been set and payment will be made based on the attainment of PI related to its corresponding level of performance. For example, a PI of 640 for the bonus year scores four weeks bonus pay (8% of annual basic wage). The bonus is calculated as a percentage of the employee's basic wage taken as at 1st September of the bonus year and payable at the end of the working year.

Absenteeism formed one of the eight qualifying criteria for the Productivity Index. For the financial year 3.10.1988 through to 1.10.1989 management decided to remove absenteeism as one of the

criteria and to use the employee's Gross Absence Rate as a negative incentive or penalty on the bonus (see Appendix C). The bonus was to be reduced by the full percentage that the employee was absent over the bonus year, using each employee's Gross Absence Rate for the year. This rule would only apply to employees whose gross rate of absenteeism exceeded 3% (seven days absence or sixty-three hours absent in the year).

Frequency Distribution

This shows the number of individuals in each of stated categories of a variable.

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CHAPTER 2

LITERATURE REVIEW

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2.1 Absenteeism

Johns and Nicholson's (1982) description of absence as meaning "... different things to different people at different times in different situations" (p. 134), serves to illustrate the complexity of absence behaviour. A vast volume of information has been collected about absenteeism. From this Steers and Rhodes (1984) have identified four clearly defined areas. These being the pervasive nature of absenteeism across organisations and international boundaries; the high cost involved; the many variables (several hundred) researched in relation to it; and its potentially serious consequences for the individual, co-workers and organisation alike.

2.1.1 Definition

Owing to the large amount of research conducted on absenteeism there are many variations to the definition of absenteeism, each one specific to the work of the researcher at the time. Mets (1986) states that "... absence from work" is the "... non-attendance of an employee when he (or she) is expected to work, for any reason at all, medical or other" (p. 95).

Fichman (1984) defines absenteeism as "... the allocation of time across non-work activities when an individual is expected to be working" (p. 20). He further describes that the concept of absenteeism only has meaning in an organisation, where an individual is employed and expected to attend work on a daily basis. Without the organisation absence has no meaning.

An earlier definition of absenteeism, given by the United States Department of Labour, 1962, is "... the failure of workers to report on the job when they are scheduled to work". It can be seen from these definitions that an absent employee is one who should be at work but has failed to attend. However, they do not distinguish whether that absence is voluntary (under the control and motivation of the employee to attend), or involuntary (beyond the control and ability of the employee to come to work), both types being forms of unscheduled non-attendance which disrupt the labour supply and consequently, the production process of the organisation (Riordan, 1988b; Hammer and Landau, 1981).

2.1.2 Costs and Consequences of Absenteeism

Until about 1979 average absenteeism for all employees was approximately 3% across the United States of America (Steers and Rhodes, 1984). In some industries (particularly manufacturing) this figure reached between 15 and 20% per day. In 1982, the absence rate had steadily declined to 2.1%, which was attributed to the increase in unemployment rate, and remained this low in 1983.

Using 1977 estimates of total costs associated with each absence (Mirvis and Lawler, 1977), the estimated cost of absenteeism in the United States for that year was about $26,4 billion (Steers and Rhodes, 1978). Of that amount, total paid sick leave costs were approximately $7 billion, or $116 per employee (Taylor, 1979). The 1983 figure was closer to $30 billion. Kempen (1982), gives a more modest estimate of $1 million in annual costs for a 1000-employee organisation with a five percent absent rate. According to the Oregon Business Barometer of May 1981, for every 0,5% of change in national absence rates in the United States, the gross national product (GNP) changes by $10 billion (Steers and Rhodes, 1984).

For Britain, a 1979 estimate gives over 300 million work days lost due to employee absenteeism in any given year (Roe, 1979). This figure amounts to about 13.5 days lost per employee (Rhodes and Steers, 1981). Daily absenteeism among blue collar workers in many industries was as high as 17% of the work force. Rates were often higher on Mondays and Fridays. These high rates of absenteeism have been cited as having contributed to the industrial slumps in some areas of Britain (Roe, 1979).

In South Africa during the 1984/1985 financial year, absence due to illness and injury alone cost industry R3 000 million to cover this absence (Van Tonder, 1987). This figure includes the amount lost by industry due to the over indulgence in alcohol. The R3 000 million is equal to

the total military budget, and is a cost the consumer eventually pays for as increased product cost. A ten percent absence rate per month, a Monday absence of up to forty percent, over-employment of ten percent, and also a high injury rate all contribute toward South Africa's low productivity rate (Van Tonder, 1987).

The additional costs associated with absenteeism involve the following:-

- direct expenses from covering for the absent employee via overtime and overstaffing
- clear-cut fringe benefit expenses (for example, pension and vacation) which absent workers continue to receive
- administrative costs of maintaining an absence control system
- increased supervisory time spent revising work schedules, counselling and reprimanding workers and checking on the output of substitutes
- lowered worker morale resulting in a higher level of turnover, grievances, and tardiness and
- reduced productivity.

(Harvey, Schultze and Rogers, 1983; Kopelman, Schneller, and Silver, 1981).

Goodman and Atkin (1984), feel that absenteeism produces both negative and positive consequences affecting the individual, co-workers, workgroup, organisation management, union officers, family and society. They have compiled a

Table I is taken from their work (Goodman and Atkin, 1984, p. 280).

TABLE I

CONSEQUENCES OF ABSENTEEISM

	POSITIVE	NEGATIVE
Individual	Reduction of job-related stress Meeting of nonwork role obligations Benefits from compensatory nonwork activities Compliance with norms to be absent	Loss of pay Discipline, formal and informal Increased accidents Altered job perception
Co-workers	Job variety Skill development Overtime pay	Increased work load Undesired overtime Increased accidents Conflict with absent worker
Work group	Greater crew flexibility in responding to absenteeism and to production problems	Decreased productivity Increased accidents
Organisation-management	Greater job knowledge base in work force Greater labour-force flexibility	Decreased productivity Increased costs More grievances Increased accidents
Union-officers	Articulated & strengthened power position Increased solidarity among members	Weakened power position Increased costs in processing grievances
Family	Opportunity to deal with health or illness problems Opportunity to manage marital problems Opportunity to manage child problems Maintenance of spouse's earnings	Less earnings Decline in work reputation Aggrevated marriage and child problems
Society	Reduction of job stress and mental health problems Reduction of marital related problems Participation in community political processes	Loss of productivity

table of these proposed consequences of absenteeism (see Table 1, p. 2.5). They acknowledge that their list is not comprehensive and that situations do vary. The effects may not always be felt immediately (lagging), and absence duration could determine different outcomes.

2.1.3 Models of Absenteeism

Fichman (1984), has conveniently summarised absence literature into six basic assumptions. Models of absenteeism can be categorised according to these assumptions, and will be described using Fichman's outline.

A. Absence is an Approach-Avoidance Behaviour

Most absence studies using job satisfaction as their explanation for the absence are describing avoidance behaviour. In addition, the Steers and Rhodes (1978) model uses decision-making or expectancy model elements to study approach-avoidance behaviour. Withdrawal research also utilises this behavioural theory.

According to the model, Steers and Rhodes (1978) suggest that an employee's attendance is largely a function of two important variables: attendance motivation (see Box 6, p. 2.9) and ability to attend (see Box 7, p. 2.9).

Two main determinants of attendance motivation are (a) satisfaction with the job situation and

(b) various internal and external pressures to attend (Hackman and Lawler, 1971; Locke, 1976). Seven aspects of the job situation have been identified by Rhodes and Steers (1981) as most likely to lead to increased job satisfaction (See Box 1 in Figure 1, p. 2.9). These are increased job scope and job level, reduced stress, smaller work group sizes, considerate leadership, positive co-worker relations, and greater opportunities for advancement.

Not all companies have the same expectations from a job, and individual values and expectations will determine how much satisfaction is experienced with the job situation (see Box 2, p. 2.9). These values and expectations have been shaped by the personal characteristics and backgrounds of the employees (see Box 3, p. 2.9) and will change over their career stage. During the selection of new employees, the organisation should try and match individual and organisational expectations to ensure satisfaction with the job.

Five major "pressures to attend" have been recognised as enhancing attendance motivation (Box 5, p. 2.9), (Rhodes and Steers, 1981). These are economic and market conditions, incentive and reward systems, work-group norms, personal work ethic, and organisational commitment.

Even if a person wants to go to work and has a high attendance motivation (Box 6, p. 2.9), there are instances where attendance is not possible. The individual may not always have the choice of attendance. There are three unavoidable limitations on attendance (Box 7, p. 2.9):-

(a) illness and accidents

(b) family responsibilities and

(c) transportation problems.

The described model is a dynamic one, with employee attendance or absenteeism often leading to change in the job situation which, in turn, may influence subsequent attendance motivation.

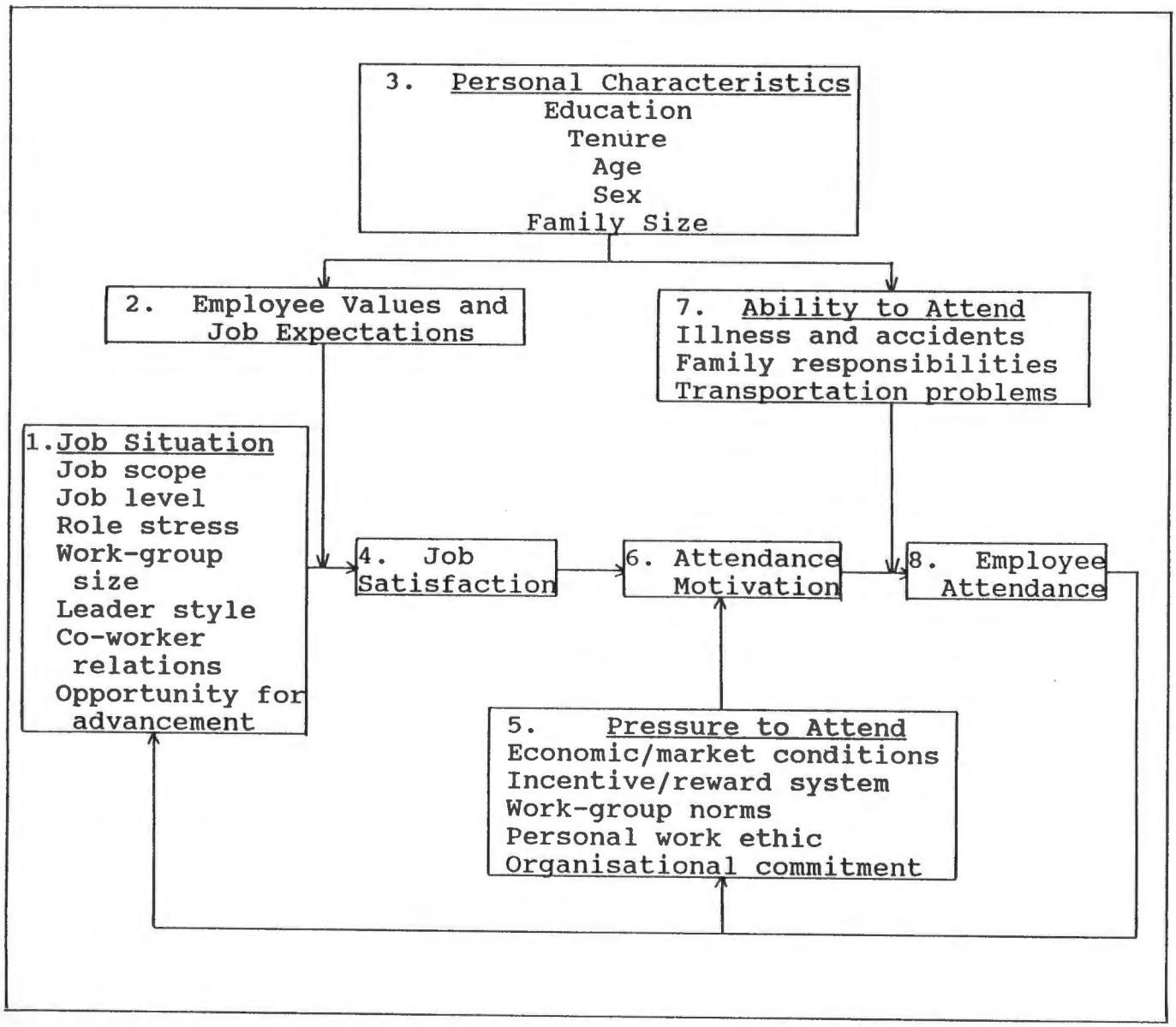
Steers and Rhodes (1980) feel that their model allows for management analysis and problem solving. Primarily because the model provides a diagnostic framework and identifies many areas in which the major problems may lie, thereby suggesting specific intervention strategies instead of more general and costly ones.

Over the years researchers have reviewed the model with mixed support. Steers and Rhodes (1984), have suggested various modifications to improve the overall utility of the model. Firstly, the modified model highlights the presence of work-group norms and absence culture in recognition of the need to place

Figure 1:

STEERS AND RHODES MODEL EXPLAINING EMPLOYEES' ATTENDANCE BEHAVIOUR

MAJOR INFLUENCES ON EMPLOYEE ATTENDANCE

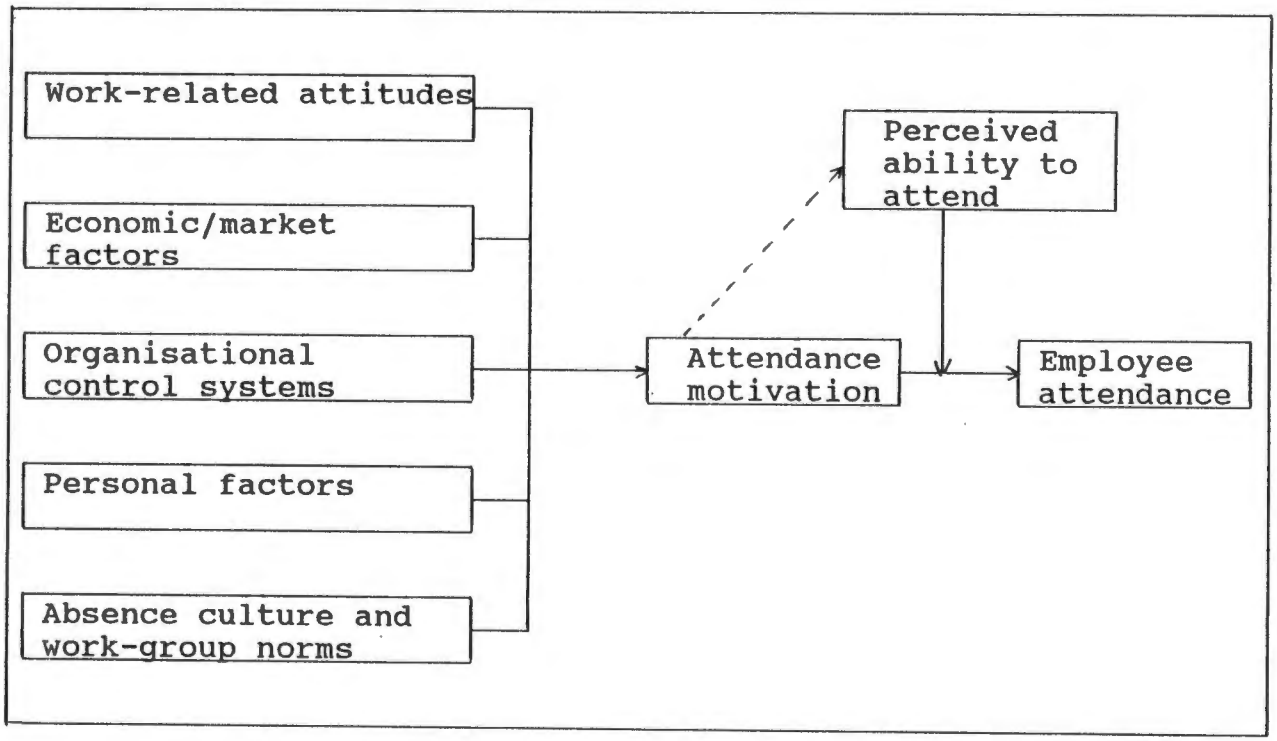


SOURCE: RICHARD M STEERS AND SUSAN R RHODES, (1978). MAJOR INFLUENCES ON EMPLOYEE ATTENDANCE: A PROCESS MODEL JOURNAL OF APPLIED PSYCHOLOGY, Vol. 63, No. 4, p. 393.

absence research in a social context. Secondly, to use the term work attitudes in place of specifying one in particular, for example job satisfaction. Lastly, perceived ability replaces actual ability to attend work. The following figure shows the revised and simplified model highlighting the main groups of variables that affect attendance.

Figure 2

AN ORGANISING FRAMEWORK FOR UNDERSTANDING ABSENCE RESEARCH



Source: STEERS R.M. and RHODES S.R. (1984). Knowledge and Speculation about Absenteeism. In: Goodman P.S., Atkin R.S. and Associates. Absenteeism: New Approaches to Understanding, Measuring and Managing Employee Absence. p. 261. Jossey-Bass Inc. Publishers, California. Jossey-Bass Limited, London (C).

The Brooke and Price (1989) causal model of absenteeism modifies and extends the conceptual framework of Steers and Rhodes (1978) and includes routinisation, centralisation, pay, distributive justice, work involvement, role ambiguity, conflict and overload, kinship responsibility, organisational permissiveness, job satisfaction, job involvement, organisational commitment, health status and alcohol involvement as the determinants of absenteeism. The researchers' write "... the causal model has shown considerable promise as a basis for investigating multivariate relationships among the determinants of absenteeism" (p. 14).

As mentioned earlier withdrawal research also utilises approach-avoidance behaviour. The progression of withdrawal hypothesis predicts a hierarchy among withdrawal behaviours, with lateness being followed by absence, which in turn results in resignation (Rosse, 1988). While Rosse (1988); Beehr and Gupta (1978) have found some support for relating the forms of withdrawal behaviour; Clegg (1983), concludes that "... the generalised notion of withdrawal is misleading" (p. 88).

Lastly, under approach-avoidance behaviour, the dynamic attendance model of Fichman (1984, 1989) is briefly described. In Fichman (1989) "... absence and attendance are studied by assessing the changing

hazard rate, h(t), of taking an absence over time in attendance. h(t) is the instantaneous rate of going from work attendance to work absence in a unit of time, given that the individual has been in attendance until time t" (p. 325). Fichman (1984) proposes the hypothesis that the h(t) of absence taking increases with increasing time in attendance. His results strongly support the hypothesis. In other words, the longer one attends work the more likely it is for that person to be absent.

Though the dynamics and withdrawal model are both approach-avoidance models, there are several differences between them. In the dynamics model absence need not be withdrawal from unpleasant work conditions but approach to a more attractive nonwork situation (Fichman, 1984). Withdrawal theory only allows for behaviour substitution in a compensatory fashion and thus, if work is not aversive, cannot predict absence with increased attendance duration as does the dynamics model (Fichman, 1989).

B. <u>Absence is the result of a decision process</u>

In the decision process model, the person decides on any given day whether or not to attend work. Hogerzeil (1968) argued that "... being unable to work" is not a static condition but a dynamic process. The cause, and therefore the treatment, of absences for different durations can be very

different. The following distinctions between the durations of sickness absence occurences can be made (Mets, 1979).

1. Subjective syndromes lasting one to three days, characterised by a high degree of freedom of decision by the individual to withdraw. This can also be classified as voluntary absence being under the control of the employee, with little or no warning given to the organisation. In organisations where absenteeism is recorded and classified according to type of absence, such voluntary absenteeism will form a considerable percentage of sick or medically certified absences (Mets, 1980; Riordan & Miller, 1986).

2. Objective-Subjective syndromes lasting four to seven days. These are characterised by a high degree of freedom at the start, less so at the end when doctors or other people may encourage a decision to return to work. Acute respiratory infections may fall under both these durations.

3. Objective syndromes, usually lasting up to fourteen days or more. These absences are due to genuine incapacitating disease and morbidity. Little freedom of decision by the individual exists at the beginning of such an absence period. The longer such objective syndromes last, the greater the freedom of the individual to decide when he feels fit to return to work. Objective syndromes can be considered involuntary in that the element of choice in staying away from work is massively reduced or absent.

A certain amount of overlap would occur between the categories. Hammer and Landau (1981); and Smulders (1980) would describe this behaviour as representing a continuum of degrees of employee choice.

C. Absence is the Outcome of an Adjustment Process

The models of Gibson (1966) and Hill and Trist (1953) can be described as adjustment models. As job conditions change, the relationship between the organisation and the employee is renegotiated. For example, absences are compensation for unattractive aspects of the job. Cultural and social expectations are included here in their control of absenteeism.

Hill and Trist (1953, 1955) introduced the concept of an "absence culture" to describe how workers learn to adjust their behaviour to the stresses of remaining in employment (Riordan, 1988b). An absenteeism culture is created by every organisation. Allen and Higgins (1979) state that absenteeism has its own cultural norms that constitute the expected, supported and accepted ways of behaving with regard to absence from work. These norms are often symptoms of larger organisational problems. The importance of work group norms as an influence on absenteeism was taken up by subsequent researchers (Chadwick-Jones, Nicholson and Brown, 1982). Given the complex nature of absenteeism antecedents, and the instability of absence phenomena, absenteeism needs to be placed

within a social context (Riordan, 1988b). Riordan (1988b), gives Johns and Nicholson's (1982), definition of the social dynamics of absence, or absence culture as "...the set of shared understandings about absence legitimacy in a given organisation and the established `custom and practice' of employee absence behaviour and its control" (p. 19).

Norms in the following areas influence people in their absence or attendance behaviour, thus helping to create company absenteeism culture, (Allen and Higgins, 1979):-

- leadership commitment and example
- recognition and compensation for good attendance
- recruitment and selection policies
- employee orientation and training
- performance appraisal
- health factors
- job satisfaction and
- the relationship of attendance to specific events, for example, long weekends.

The persistence of negative norms encourages absenteeism and necessitates alternate planning to allow for the absent workers. Once an absenteeism culture has been established it requires systematic effort to mediate change. Allen and Higgins (1979) describe one such approach:-

- involvement of employees at all levels
- results orientated, the entire organisation needs to be kept regularly informed of results and improvements
- sound data, accurate pre-programme analysis and record keeping
- a positive focus, reward and recognition for good attendance
- a systematic approach with management involvement
- follow-through-management to periodically review, renew and sustain attendance goals.

People do fall ill, but an attendance-orientated culture with an attendance way of life can be created. Change requires a complete corporate commitment to encourage attendance rather than manage absenteeism.

D. Absence is a Habit

Habit suggests that a few workers are responsible for most absence and these workers can be thought of as being "absence prone". Rushmore and Youngblood (1979), define an employee as being absence prone "... when he or she consistently takes more time off work than average" (p. 247). The results of their work showed a large proportion of lost time could be attributed to a small number of employees, with some degree of interperiod stability in the absence behaviour, indicating absence proneness. The earlier

work of Ferguson (1972); and Froggatt (1970) supports the concept of absence proneness. However, Fichman (1989), using a hazard rate approach to modelling attendance provides evidence against the notion that attendance is a habit.

E. Absence is a Consequence of an Apparently Unrelated Event

Unrelated or apparently unrelated events, such as a stressful family crisis (for example, divorce) or some behavioural problem, (for example, alcohol abuse) may lead to absence.

F. Absence is Phenomenologically Unique

The key distinctive feature is the recognition of multiple functions in approaching absenteeism.

Clearly, from this review, approach-avoidance behaviour is favoured by the majority of absence researchers and has received much attention in formulating absence theory in the last ten to fifteen years. Some of the most recent research is based on this approach (Brooke and Price, 1989; Fichman, 1989).

2.2 Control of Absenteeism

"The goal of [an] absence-control programme is not an unblemished attendance record, but the elimination of the inefficiencies created by the absenteeism."
Seatter W.C. (1961) p. 24.

Comparatively little has been written on the effectiveness of basic control policies and practices used by companies to control absenteeism. Scott and Markham (1982) surveyed a national sample of personnel managers who were members of the American Society for Personnel Administration. These managers were asked to identify the methods used by their organisations in controlling absenteeism and to evaluate the effectiveness of these programmes. A twenty percent response rate was received (987 respondents). The average absenteeism rate for the participating companies was 4.2 percent, with the average size of the hourly work force being 994.

A wide variety of control methods were used by the companies, although not all methods were equally popular. Nine methods rated most effective in controlling absenteeism were discipline/monitoring methods. The three most highly rated programmes were:-

- termination based on excessive absenteeism
- a progressive discipline system for excessive absenteeism and
- a consistently applied attendance policy.

These methods were used by 96%, 91% and 79% respectively of the organisations in the sample.

Some of the most frequently used control methods were not considered as being effective, for example, producing medical certificates to legitimise the absence, and discussing attendance requirements during employee orientation programmes. Scott and Markham (1982) questioned the continued use of these

methods by companies if they were rated so poorly. Though programmes rewarding attendance have been found in published literature, the survey indicated that such programmes were used infrequently.

Scott and Markham, using a statistical test of significance (t-test corrected for unequal cell size), compared the absence rates for users and non-users of each programme:-

(i) Where a consistently applied attendance policy was in use, absenteeism was significantly lower (4.2%) than in organisations not reporting such a policy (4.8%).

(ii) Firms that screen recruits' past attendance records before employing had a lower rate (4.2%) than firms that did not use this method (4.7%).

(iii) Organisations which provided public recognition techniques for good attendance, for example, in-house bulletin boards and newsletters, had a significantly lower absence rate than those that did not provide such recognition (3.6% versus 4.6%).

These results demonstrate the potential benefit an effective control programme could have on company absenteeism.

2.2.1 Review of Control Programmes

Not all of the following control programmes were conducted in industrial settings, but the principles gained from them would have broad application. Steers and Rhodes (1984) provide three basic approaches to absence control.

A. Punishment and negative incentives

Progressively severe discipline is imposed for repeated absence from the job. Common disciplinary measures include discussions with the supervisor, verbal warnings, written warnings and termination of service. Stone (1980) summarises the data as suggesting that disciplinary approaches are particularly effective when the absence problem is attributed largely to a "high absence" minority.

Nicholson (1976) studied the effects of a sudden clamp-down by management on the behaviour of an English female workforce. The results showed a conversion of short to longer spells, but not a significantly altered level of absence, and a substitution of certificated for uncertificated absence. Baum (1978) implemented an attendance-control policy incorporating a six-step procedure for unauthorised absences in a department of a large manufacturing organisation. Results supported the effectiveness of the attendance-control policy among chronically absent workers, with no improvement in attendance among better attenders, and no trend toward taking certified absences over uncertified absences (Steers and Rhodes, 1984).

B. Positive-reinforcement programmes

This is a more positive, less punitive approach to absence control. These programmes reward good

attendance with either continuous or intermittent reinforcers. Some managers do not support the rewarding of good attendance in that it should be an implicit requirement of the job (Stone, 1980). Stone (1980) recognises that there are disadvantages and problems associated with the "carrot" approach. Firstly, the reward may not be sufficient to motivate the excessively absent employee; the disqualified employee may end up taking additional time off during the reward period; and lastly, the system may lose its effectiveness once the novelty wears off.

Ten positive-reinforcement programmes were reviewed by Schmitz and Heneman (1980). In all ten cases, implementation of the reinforcement programmes was accompanied by a reduction in absenteeism. A variety of methods was used including attendance bonuses (Grove, 1968), weekly bonuses (Lawler and Hackman, 1969; Orpen, 1978), bonus pay (Panyan and McGregor, 1976), bonus points (Baum and Menefee, 1979), poker games (Pedalino and Gamboa, 1974), lottery systems (Wallin and Johnson, 1976; Stephens and Burroughs, 1978), and food credit (Kent, Malott and Greening, 1977). Unfortunately, certain areas of the studies weaken their validity. One problem involves the lack of control or comparison groups in several of the studies. Without the use of control groups, it is not possible to rule out alternative explanations for

the obtained results. Other problems included not differentiating between voluntary and involuntary absences; short time spans for data collection; and inadequate, or lack of, cost-benefit analyses.

Schlotzhauer and Rosse (1985), reported on the results of a five-year study of a positive incentive absence control programme in an American hospital environment. Employees were allowed ninety-six hours of annual sick leave. The incentive being the conversion of up to twenty-four hours of unused sick leave into additional pay or vacation at the end of the year. To determine the amount of the incentive, the number of hours absent was subtracted from twenty-four, any surplus hours were converted into additional pay or vacation. There was a significant decrease ($p < 0.05$) in absence during the first and third years of the programme, but no significant change in absence level occurred during the second year. There was no significant change in the comparison group's absence level during the three years the programme was operational. A utility analysis revealed that the incentive programme produced an 11.7 percent return on investment. This type of programme actively rewards regular attenders. Schlotzhauer and Rosse advocate this advantage as being sufficient to justify a programme that only broke even on strictly financial criteria.

C. Mixed-consequence systems

The third approach is a combination of the previously discussed methods aiming at changing the attendance behaviour of both those who respond well to positive incentives and those who respond better to disciplinary threats. The disciplinary sanctions become operational only after the worker has failed to respond to the incentives to attend regularly. Hence, the vast majority of workers responding to the positive incentives would not be adversely affected by the presence of sanctions that apply to the chronic absentee (Baum, 1978). Employees who are motivated by neither approach, would be likely candidates for termination.

Kopelman, Schneller and Silver (1981), studied the effects of a new time-off-with-pay system for an American medical centre. Under the new system vacation, public holiday and sick leave were replaced with the two accounts paid leave and sick leave. Five sick days were combined with vacation days and paid public holidays to form the paid leave account. The remaining sick leave days were assigned to the sick leave account. The paid-leave account could be converted into cash. The sick leave account was intended primarily for long-term illness, and could only be used on medical certification once the paid leave account was exhausted. Once an employee had used his five days of sick leave, any further absence

reduced his vacation time or the amount for the optional cash payout. There was a substantial reduction in sick hours taken, and an accompanying decline in the number of overtime hours worked. Kopelman, Schneller and Silver (1981), believe the Leave Bank system motivates behaviour resulting in reduced absenteeism, yet at the same time has built-in controls against abuse, as well as having broad application in various organisational settings.

Benefits of an effective absence control programme should be improved absence behaviour and the avoidance of costs such as overstaffing to cover absentees, productivity losses, over-time costs and damaged client or customer relations. Less tangible human gains might include higher employee morale and improved worker relationships (Stone, 1980).

2.2.2 Organisational Policies

"The function of control processes is to invoke conformance to organisational requirements necessary for the accomplishment of basic organisational goals." Tannenbaum A.S. (1968).

Organisational absenteeism policies can be expected to affect the consequences of absence behaviour and have the effect of making absenteeism easier/harder or more profitable/less profitable for the employees. Such

predictors may be found in the collective bargaining agreements between the organisation and its employees. Dalton and Perry (1981) correlated organisational policy variables with absenteeism for twenty-nine American west coast transportation services. From the results it would appear that organisations that pay operators a higher rate, allow sick benefits to accumulate at a faster rate or provide more sick days a year, and do not compensate for unused sick leave, have higher absence rates. Organisations not requiring sick certification did not have higher absenteeism rates. Dalton and Perry concluded that generous sick leave policies are not effective control measures for absence.

Another study investigating whether organisational policies and practices can be effective deterrents of absenteeism, focused on the relationships between perceived consequences of absenteeism and employees' patterns of attendance (Morgan and Herman, 1976). The study was conducted in an unionised automobile-parts foundry. Frequently absent employees were more likely absent due to motivating consequences, than infrequently absent employees, and will tend to justify their absence. Such motivating consequences included break from routine, personal illness, personal business, transportation problems and leisure time. They were not any more deterred in their absenteeism behaviour by organisationally controlled consequences than the infrequently absent. These results suggest that organisational policies regarding absenteeism do not act

as deterrents to absenteeism. Loss of wages was the only deterrent perceived to be important. Hammer, Landau, and Stern (1981) showed that absenteeism is primarily affected by financial and organisational commitment.

Though it is preferable to motivate attendance by positive incentives, improving conditions of employment and increasing job satisfaction, attendance control does not appear to be achieved. One may have to agree with Baum and Youngblood's (1975) conclusion "... Since a legalistic control strategy is relatively easy to administer and offers lower initial costs to managers, it may be the most effective control strategy in many organisational settings." (p. 693). In addition, evidence from Baum (1978), does not support the generalisation that management sanctions will be accompanied by undesirable side effects, for example the shift from shorter to longer absences.

2.2.3 Sick Payment

Sick pay serves as an insurance for workers for when there is a loss in earnings owing to illness. However, sick-leave abuse takes place and adds greatly to manufacturing costs. There is empirical evidence that organisations with paid sick leave experience almost twice the absenteeism of organisations without such a programme, (Willings, 1968). Further, when more generous sick pay schemes are introduced absence increases. The low rate of absence in the first six months of employment in companies where no sick payment is given, and workers attendance at

work once their paid sick leave has been used up also show that financial disincentives prevent absences attributed to sickness (Carter, 1975). Buzzard and Shaw (1952) and Denerley (1952) have shown that the introduction of a paid sick leave scheme caused an increase in sickness absence. Acknowledging possible abuse of the system they suggest two ways in which the scheme may affect sickness absence. Firstly, it "... will enable many people to be absent who ought to have been absent before" (Buzzard and Shaw) and could not afford to miss work; and secondly, a sick pay scheme "... may help to prevent further illness by providing the opportunity to recuperate fully before resuming work" (Denerley). Pocock (1973), showed in his longitudinal study of 454 new employees in one factory that sickness absence rates in the first six months of service were less than half the rates during the next four and a half years. This is presumed to be partially caused by the lack of company sick pay during this initial period. Pocock emphasizes that eligibility for sick pay schemes must affect an employee's attitude toward taking sickness absence, particularly considering the conclusion given previously that the main deterrent in organisational absence policies is loss of wages (p. 2.26).

2.3 Independent Variables

Much traditional research into absenteeism has attempted to correlate demographic, personal and organisational variables with various types of absence. Absenteeism has generally been

taken as the dependent variable. There are several comprehensive reviews of traditional absence research (Muchinsky, 1977; Porter and Steers, 1973; Rosse and Hulin, 1985; Steers and Rhodes, 1978; 1984), from which the conclusion is drawn "... that neither worker, organisational or environmental factors can adequately explain the data on absences" (Riordan, 1988b, p. 16).

2.3.1 Personal Variables

Age

The most consistent results are reported for age, which tends to be negatively related to voluntary withdrawal and positively related to involuntary withdrawal. Because older workers have a stronger commitment to work than younger workers, they should be less likely to be voluntarily absent (Hammer, Landau and Stern, 1981). Nicholson (1975) and Nicholson, Brown, and Chadwick-Jones (1977), discuss age in terms of a growth in "attachment to work". Older people may have an increasing need for stability and thus attend work more regularly, whereas younger people have different expectations from work and non-work activities and are not "pulled in" to work to the same degree, leading to increased absence (Clegg, 1983). Rhodes's (1983) review of multivariate studies indicates that age is an important predictor of avoidable absence. That is, older workers, particularly males, have lower rates of avoidable absence. The higher rates of unavoidable absence among older male workers may be associated with deteriorating health, onset of chronic

illness and a longer recovery period when injured (Root, 1981). A more recent study (Sexton and Schumann, 1985), found the younger worker to be more frequently absent.

Number of Dependents

Popp and Belohlav (1982); Hammer, Landau and Stern (1981), and Behrend (1974), found no evidence for relating family size with absenteeism. Fitzgibbons and Moch (1980), concluded from their study that dependents act as incentives to attend rather than as pressures inducing absence. Those with dependents cannot afford to compromise their employment prospects. This is in contrast to Shepherd and Walker's (1958) early study where the relationship between family responsibility and absence was found to be U shaped. Absence was higher for single men, fell to a minimum for those with two dependents, and then increased progressively for men with more than two dependents.

Sex

Females have been found to have higher rates of absenteeism than men (Garrison and Muchinsky, 1977), and are more frequently absent (Sexton and Schumann, 1985). Interestingly, Nicholson, Brown and Chadwick-Jones (1977) found specifically that females had higher absence rates between ages twenty-six and thirty-five than they did after age forty-six. Male-female differences in age-absence trends can largely be explained by differences in levels of domestic responsibility (Isambert-Jamati, 1962). The

inverted-U relationship for women with regard to unavoidable absence may be a reflection of the women's role in caring for sick children and her own susceptibility to illness as a result of exposure. For males, on the other hand, unavoidable absenteeism apparently increases with age, presumbly because of health reasons, while avoidable absenteeism does not (Nicholson, Brown and Chadwick-Jones, 1977).

2.3.2 Organisational Variables

Service Duration

In Popp and Belohlav (1982) study on absenteeism in a low status work environment tenure was found to show the negative relationship with absenteeism as suggested by Fitzgibbons and Moch (1980); and Nicholson, Brown and Chadwick-Jones (1977). However, Hammer, Landau and Stern, (1981), found no conclusive evidence for the relationship involving job tenure and absence. One difficulty in analysing length of service is it's relationship to other factors such as age, and any association found between sickness absence and length of service may be attributable to the effects of such factors (Pocock, 1973). The results of Pocock's (1973) cross-sectional study show a slight fall in absence frequency rate with increased length of service while the number of days lost remains static. He associated this with greater job responsibility and job satisfaction which a longer serving employee usually experiences. Hill and Trist (1955) in their longitudinal study showed that overall absence frequency declined as

length of service increased, with the exception of the low frequency in the first six months, but that "sanctioned absence" (which consisted mostly of sickness absence) showed a steady increase in frequency.

Overtime

Behrend's (1974) results illustrate the inverse functional relationship between absence and overtime and absence and total hours worked. Walter and de la Mare (1971) found that there was a tendency for absence to be less among high overtime workers than among those who worked medium or small amounts of overtime. There was no evidence at all that high overtime and absence from work were positively associated.

Job Grade

Owing to the lack of literature found on the subject of job grade some information will be given on wages, which can be related to job grade, for example, the lower the wage earned usually the lower the job grade of the employee. Contrasting results have been given. Shepherd and Walker (1958) found that men at higher wage levels lost more time through absence than men at lower wage levels. Behrend (1974) reported greater absence among employees in the lower earnings group.

From the above discussion, the most consistent evidence has only been reported for the relationship between age and absenteeism. There is some agreement on the differing role of the sexes and

subsequent effect on absenteeism. Conflicting results exist for the relationships between absenteeism and number of dependents, service duration, overtime and job grade or wages. Relatively little research has been done on organisational variables compared to the writings on personal variables. Spencer and Steers (1980) studied the influence of personal factors (age, tenure in the organisation, tenure in position, sex and education) and perceived work experiences (group attitudes towards the organisation, met expectations, job challenge, personal importance to the company, and organisational dependability) on absenteeism. They determined that personal characteristics were significantly associated with absenteeism ($R = 0.35$; $p < 0.05$), and that absenteeism was better predicted by personal factors than by work experiences.

2.4 Conclusions

The above literature review has attempted to give the reader a broad understanding of absenteeism and an indication of the size and complexity of the subject. When studying absenteeism, the problem is not lack of research material but deciding what direction new work should take. Thus, three areas were discussed in some detail. Firstly, following definitions, costs and consequences of absenteeism, models of absenteeism were presented. A common criticism of many studies is the lack of theory upon which the study is based. Most researchers favour the approach-avoidance behavioural theory, of which the Steers and Rhodes (1978) model is probably the best known. Following constructive criticism the model has been modified to improve

overall utility (Steers and Rhodes, 1984). The recent Brooke and Price (1989) causal model of absenteeism is another modified extension of their model, and shows promise for investigating multivariate relationships among absenteeism determinants.

Secondly, the area of absenteeism control was reviewed. There are three main approaches to absence control. These are punishment and negative incentives, positive-reinforcement programmes and a combined approach. Using punishment and negative incentives would appear the more popular method and reported to be the cheapest and most effective to maintain (Baum and Youngblood, 1975). A variety of positive-reinforcement programmes have appeared in the literature suggesting greater support for the approach than the survey conducted by Scott and Markham (1982) indicated. The combined approach promises to motivate the majority of workers, with some successful examples given in the literature (Kopelman, Schneller and Silver, 1981; and Harvey, Rogers and Schultz, 1983).

Organisational policies on absence and sick leave do not necessarily act as deterrents to absenteeism. Dalton and Perry (1981) found that the more generous the policy was the higher the absence rate is. Financial loss was the only deterrent perceived to be important in controlling absence.

A brief description of a few selected independent variables concluded the review. The most convincing relationship exists between age and absenteeism. There is some agreement on the differing role of the sexes and subsequent effect on

absenteeism. Conflicting results confuse the relationship between absenteeism and number of dependents, service duration, overtime and job grade or wages.

The study of absenteeism is generally becoming more sophisticated, the statistical analysis more convincing, with an overall trend away from simple correlation between two variables to multivariate analysis, to using event history models or hazard rate models (Harrison and Hulin, 1989; Fichman, 1989). However, despite advanced theory and methodology absence still poses a costly problem to management with no real "cure" on the horizon.

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CHAPTER 3

STUDY POPULATION AND DETERMINING VARIABLES

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3.1 Study Population

Gabriel SA (Pty) Ltd, a mechanical engineering company, is situated in Retreat, Cape Town. Consumer goods manufactured are shock absorbers, struts and gas springs. Staff complement as at 30 September 1987, was 508 employees, of which 394 were hourly paid, and of these 322 (81.7%) were male employees. One year later, 30 September 1988, staff complement had increased to 579. Of the then 454 hourly paid workers 384 (84.6%) were male. Over the two year study period there was a 15.2% increase in hourly paid workers owing to increased production demands. Male hourly paid employees increased by 19.3%. The majority of the hourly paid employees (94.9%) were coloured. Temporary hourly paid employees have been included in the above figures. On average there were between ten and twenty temporary employees for any one month. A temporary employee is usually employed for a three month period.

The mean Gross Absence Rate for the hourly paid employees was 5.1% for the first year of study rising to 5.8% in the second year, giving a 14.2% increase in absence over the two years. In contrast, overtime rate decreased by 23.3% over the same period. Mean overtime rate for October 1987 to September 1988

was 17.2% and for the next twelve months, 13.2%. This marked reduction in overtime followed a determined effort by management to reduce overtime. Reasons were high overtime costs, reduced morale and resultant inefficiency, and partly also the significant relationship found between overtime and absence ($r = 0.562$; $p < 0.05$) reported in the author's earlier study on absence (Winfield, 1988, p. 89).

Labour turnover for the first year of study (October 1987 to September 1988) was 6.2% with a marked increase to 11.8% for the second year (October 1988 to September 1989) indicating a need for investigation of the possible causes. The employment of seventy-one new hourly paid employees in the second year of study may have contributed to the greater rate, as labour turnover is known to be higher for new employees (Price, 1977; Wanous, 1980).

The study population is defined as the permanent hourly paid employees at Gabriel SA (Pty) Ltd, in the employment of the company between 31 August 1987 and 1 October 1989. It is from this background that the three sample populations were selected.

3.1.1 Selection and Definition of Sample Populations

Since the population was well contained and a good proportion of the data computerised and accessible, it was decided to use all available employees for the different hypotheses. In companies employing over 500 people and where information is not available on computer, selective sampling would probably be a necessity. For each

hypothesis a different sample population taken from the study population was used and each will be discussed separately. The relevant hypotheses are accordingly given.

Hypothesis 1

The introduction of sick payment from the first day of sickness absence as opposed to payment from only the third day of sickness absence, effective from 29.08.1988, for employees with less than five years service duration tends to increase the number of sick days taken.

The sample population needed to consist of employees with less than five years service duration, who all had experienced over a period of at least one year, receiving sick payment from only the third day of sickness absence, followed by the implementation of the more generous sick pay benefits in August 1988. The sample population for Hypothesis 1 is defined as those permanent employees with less than five years experience who were in continuous employment with Gabriel SA (Pty) Ltd from 31 August 1987 through to 27 August 1989 (dates follow the company's financial year). Employees who joined the company or resigned from Gabriel during this period were not included.

It is necessary to distinguish between Industrial Council Rated or Non-Industrial Council Rated Gabriel employees for Hypothesis 1. The differences in sick pay benefits were only applicable to the Industrial Council employees. All Non-Industrial Council employees qualify for sick pay

benefits from the first day of sickness absence regardless of service duration. Owing to this fact it was possible to use this group of employees as a "comparison of trend" sample population, as all other conditions of employment remained the same. This "comparison of trend" population were those employed for less than five years and who were in continuous employment for the two years under study. Though not strictly a control group, this did allow comparison to determine possible influences on the absence pattern.

The sample population for Hypothesis 1 consisted of 107 permanent, hourly paid industrial council rated employees. There were only 14 permanent, hourly paid non-industrial council rated employees making up the "comparison of trend" population group.

Hypothesis 2

Gabriel SA (Pty) Ltd introduced a penalty system that influenced each employee's annual bonus, where once an employee's rate of absenteeism exceeded 3% for the bonus year (taken from 3.10.1988 through to 1.10.1989) that employee's bonus would be reduced by the full percentage for which he or she was absent. Thus, the second hypothesis states that the introduction of this penalty system, based on individual absence behaviour, will significantly reduce the number of absence days in the company.

There were 331 permanent, hourly paid employees who qualified to form the negative incentive bonus scheme sample population for Hypothesis 2. Employees who were not continuously employed for the two year study period from 28.09.1987 to 1.10.1989 were not excluded. Initially, no distinction was made between lengths of service, nor was the rating of being either industrial council or non-industrial council of relevance for the second hypothesis. However, during analysis it became evident that it was necessary to distinguish between those employees with less than five years service duration and those with greater than five years service duration. The implementation of the revised Main Agreement for the Motor Industry (see Appendix A) pertaining to sick pay benefits necessitated this distinction. Thus the second negative incentive bonus scheme sample population for Hypothesis 2 were 185 permanent, hourly paid employees with over five years service duration who satisfied the requirements for this sample population.

Hypothesis 3

A sample population of fifty employees with the highest Gross Absence Rates will show a significantly different pattern of variables, such as age, duration of service, number of weeks excess overtime worked, job grade and number of dependents, from a group of fifty employees with the lowest Gross Absence Rates over the financial year from 3.10.1988 through to 1.10.1989.

Fifty employees with the highest Gross Absence Rates for the financial year 3.10.1988 to 1.10.1989 formed the one comparison sample population group, while fifty employees with the lowest Gross Absence Rates (the fifty best attenders) made up the other group. These one hundred were all hourly paid employees, and in continuous employment for the year under investigation. One further requirement was a service duration of longer than one year, as it is known that new employees with less than one year service duration are likely to show a high turnover rate (Price, 1977; Wanous, 1980), and an abnormally low absence pattern (Hill and Trist, 1955). It was also decided to restrict the study to males only, owing to there being too few eligible females and the knowledge that there may be a difference in absence behaviour between the sexes (Garrison and Muchinsky, 1977; Sexton and Schumann, 1985). The high absence sample population was reduced to 38 males, and 41 males formed the low absence sample population group.

3.1.2 Comparibility of Study Populations

Gabriel SA (Pty) Ltd being a medium sized, mechanical engineering company employing largely male, coloured employees would not be representative of all industry. Mets (1979) showed that for absence behaviour of the group of black, coloured and white workers in his study "... personal, organisational, socio-economic and socio-political variables could account for most of the observed differences" (p. 805) and not ethnic factors. Therefore, though this Gabriel study may not have universal

application it would have relevance locally where industry largely employs coloured workers of a similar socio-economic and socio-political background.

Atkin and Goodman (1984) question the generalisability of company policy as to whether a policy in one setting would produce similar results in another setting. This illustrates that the results would primarily interest the management of Gabriel SA (Pty) Ltd.

3.2 Determining Variables

A description of the various company policies pertaining to prevailing absence culture and behavioural norms follows. Copies of the complete policy statements can be found in the Appendices.

3.2.1 Gabriel SA (Pty) Ltd Sick Leave and Sick Pay Policy; Overtime Policy

A. Sick Leave and Sick Pay Policy (see Appendix E)

Sick leave and sick pay benefits vary depending whether the hourly paid employee is Industrial Council Rated or Non-Industrial Council Rated.

Industrial Council Rated Employees

Approximately 363 hourly paid Gabriel employees were Industrial Council Rated on 30 September 1987. Their conditions for sick leave and sick pay are described in the

Main Agreement of the National Industrial Council for the Motor Industry (see Appendix B). Prior to 29.08.1988 the Agreement stipulated that "during any period of 52 weeks with the same employer, the employee will be allowed a maximum of 10 working days sick leave if he normally works a 5 day week." The first two days of the sick leave will not be paid, except when the period of absence exceeds six consecutive working days and then the actual number of days (subject to a maximum of ten working days sick leave) will be paid. The amended Main Agreement for the Motor Industry, effective from 29 August 1988, (see Appendix A), stipulates that all hourly paid staff qualify for paid sick leave from day one of absence on sick leave. A valid doctor's certificate must be produced in all cases of sickness absence for the employee to receive sick pay.

Those Industrial Council Rated employees who have been in continuous employment with the company for five full years and who produce a valid doctor's certificate on return to work will be granted sick leave pay from the first day of absence. Furthermore, they are "eligible for 30 working days sick leave on full pay during each sick leave cycle of 36 consecutive months employment with the company, calculated from the start of the sixth year of employment. Such sick leave in excess of 10 days per year will only be granted in advance (of the yearly entitlement) at the discretion of the Department Head concerned and only in the case of serious illness" (see Appendix E). The use of paid sick leave in excess of ten days per year does not apply to

employees with less than five years service. Sick leave may not be accumulated.

The Sick Leave Policy formulated 1 October 1985, was revised 26 January 1988. The change that took place involved the thirty working days sick leave on thirty-six consecutive months employment. Previously, those thirty days sick leave could be taken indiscriminately by the employee, and when really needed for serious illness, no sick leave might be available. Stricter control was instituted by saying that sick leave in excess of ten days per year will only be granted "in advance" at the discretion of the Department Head.

Non-Industrial Council Rated Employees

Only a small proportion of the hourly paid employees are Non-Industrial Council Rated. There were 32 (7.9%) such employees on 30 September 1987. Non-Industrial Council employees are primarily storemen working in the following departments: Goods Receiving, Toolstore, Bulkstore, Despatch and Shop Clerical. Their sick benefits are prescribed in the Basic Conditions of Employment Act, 1983 (see Appendix F).

They are "eligible for thirty working days sick leave on full pay during each sick leave cycle of thirty-six consecutive months employment with the company." Sick leave may not be accumulated. Sick leave pay will be granted from day one of the absence period, but a valid

doctor's certificate must be produced for sickness absence from work exceeding two consecutive working days in order to receive sick leave pay.

B. Overtime Policy (see Appendix G)

It is stated in the Company Policy that "overtime be kept to the absolute minimum" and in those areas where overtime is regular and lengthy, consideration must be given to reducing it by increasing the level of operative staffing."

The authorisation to work overtime is contained in the daily/weekly overtime record sheet and "all operator overtime must be reported on in the Managing Director's Bi-Monthly Report". Overtime work must be supervised. "A weekly summary of actual excess overtime worked must be produced", that is overtime in excess of ten hours per week for all employees. The Personnel Manager controls the use of excessive or prolonged overtime. Excess overtime may only be authorised with an Exemption Certificate. An Exemption Certificate may be applied for from the Industrial Council for Industrial Council Rated employees or from the Department of Manpower for Non-Industrial Council Rated employees.

"Payment for overtime will be in accordance with the rates laid down by the Industrial Council Agreement or the Basic Conditions of Employment Act, or at a higher rate at the Company's option." Generally, the rates stand at 1 1/3 times for weekdays and Saturdays, double time for Sundays

and 2 1/3 times for Public Holidays. Provision is also made for meals and transport for the overtime period.

3.2.2 General Incentive Bonus Scheme

The Company's General Incentive Bonus Scheme is based on productivity performance. Extracts will be quoted from a letter to employees describing "How the General Incentive Bonus Scheme Works" for the bonus year 1987/1988 (see Appendix D).

"A number of key criteria related to productivity" at Gabriel "have been identified. Each criterion is weighted and constitutes a portion of the total Productivity Index. Each criterion contains measured objectives relative to levels of performance from level 1 to level 10. The index for each criterion is obtained by multiplying the performance level by the weighting. The total Productivity Index is obtained by totalling up the scores on the individual criteria."

The different criteria are as follows: Order Fill, Direct Efficiency, Indirect Efficiency, Quality, Cost Reduction Index, Absenteeism, Stock Turnover and Stock Adjustment. Please see Appendix D as to how each of these 8 criteria are calculated.

The terms and conditions for the General Incentive Bonus Scheme 1988/1989 were altered to accomodate the negative incentive control programme on absence behaviour.

Absenteeism formed one of the eight qualifying criteria for the Productivity Index. For the financial year 3.10.1988 through to 1.10.1989 management decided to remove absenteeism as one of the criteria and to use the employee's Gross Absence Rate, as a negative incentive or penalty on the bonus (see Appendix C). The Gross Absence Rate would be calculated by dividing hours absent for the year for reasons of illness (certificated and uncertificated), unauthorised absence and accidents by normal manpower hours worked in that year (excluding overtime) for each employee. The bonus was to be reduced by the full percentage that the employee was absent over the bonus year, based on each employee's Gross Absence Rate for the year. This rule would only apply to employees whose gross rate of absenteeism exceeded 3% (seven days absence or sixty-three hours absent in the year).

3.2.3 Job Grade

At Gabriel the Paterson Job Evaluation Method (Appendix H) is in use. This is based on the view that all jobs, regardless of level, involve decisions. Higher graded jobs involve a higher type of decision making and are, therefore, more complex and difficult to perform than lower level jobs. Six organisational levels are defined from unskilled to board of directors. Employees making up the various sample populations were graded according to the three lowest levels.

Unskilled staff form Grade A, where decisions are well defined - on how fast or slow the task is performed, and all tasks are fully prescribed. A large proportion of the hourly paid employees fall under the unskilled category. This category includes operators, audit inspectors, cleaners, labourers, stores assistants, artisan's assistants and material handlers. Based on 30th September 1987 figures approximately 273 people made up this group.

The semi-skilled category, Grade B, consists of automatic decisions - on when the prescribed task will be performed and the quality of performance. Grade B includes operator-setters, setters, clerks, patrol inspectors, storemen and drivers. Approximately 89 people were employed in these functions at commencement of study.

The skilled staff, Grade C, are involved with routine decisions - on how to do the tasks resulting from interpretation of work needs. This group consists mostly of salary paid workers. Artisans, engineers, foremen, supervisors, chargehands and senior quality assurance inspectors constitute Grade C. However, only the artisans would form part of the study population as their pay rates are hourly based. Approximately 32 artisans formed the study population.

Within each band or grade further subdivision is made between jobs where people make different levels of decisions, and jobs where people coordinate the activities

of such people in that band. Further distinction can be made within the grade depending on job complexity.

The Paterson Job Evaluation Method is widely used in South Africa. It is emphasized that the method evaluates jobs, not people. The job grades have been evaluated in terms of their value to Gabriel and this grading would probably not apply to all industries. Annual merit rating takes place in order to regularly assess the performance of people in their jobs.

3.2.4 Service Duration and Benefits Received

Some differentiation is made between employees with continuous employment at Gabriel for five full years and more, and those employees whose service record is less than five years.

Firstly, the main difference, prior to the amendment of the Main Agreement for the Motor Industry (29.08.1988) concerned sick payment from day one of sickness absence as opposed to from day three for Industrial Council Rated employees with less than five years service duration on presentation of a sick certificate, (see Appendices A, B and E). In addition, "Industrial Council Rated employees who have been in continuous employment with the company for 5 full years are eligible for 30 working day's sick leave on full pay during each sick leave cycle of 36 consecutive months' employment with the company, calculated from the start of the sixth year of employment".

Secondly, employees with a service duration of over five years qualify for twenty days annual leave, as opposed to fifteen days annual leave for the others.

Thirdly, concerning Disciplinary Procedures, the dismissal of an employee with five or more years continuous service is subject to the approval of the Managing Director.

The determining variables discussed here may or may not have influenced the outcome of the study, but their potential influence should be kept in mind during the interpretation of the study results.

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CHAPTER 4

METHODOLOGY

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METHODOLOGY

4.1 Introduction

During an individual's working life there will be occasions when he or she fails to attend work. A typical distinction among various types of absences is to separate medically-related absences from other types, since medically related absences are believed to reflect random or unsystematic causes of behaviour rather than voluntary, usually unauthorised choice behaviour of the employee (Rushmore and Youngblood, 1979). However, absence control policies and studies ideally should be directed at both the voluntary defined forms of absenteeism and to the medically-related absences. This is because "... medically-related and voluntary defined absences may share common causes related to the employee's motivation to come to work regularly" (Rushmore and Youngblood, 1979, p. 245). Furthermore, the relatively higher acceptability of illness as a reason for non-attendance will also influence the proportion of absences which are attributed to medical causes (Carter, 1975), compared to voluntary absences.

4.1.1 Measures of absence

There are basically two measures of absence behaviour - the number or frequency of absence spells per person and the

(average) duration of these spells (Smulders 1980). All other measures can be derived from them, or are a product of both, for example, the time lost index - is the product of the frequency and duration of the absence spells. Total days absent and absence frequency are also the most commonly reported measures of absenteeism in published research (Garrison and Muchinsky, 1977b). Smulders (1980) further stated that frequency and average duration are negatively correlated and only partly determined by the same personal, organisational, and external variables. Thus they can be regarded as separate behaviour indicators.

Absence frequency has been found to be a more stable measure of absenteeism over time than total days absent (Breaugh, 1981; Hammer and Landau, 1981). Stone (1980) assessed absence frequency as being more descriptive of absence behaviour in that it can distinguish between, for example, one consecutive three-day absence and three one-day absences in a given period. The three scattered absences may indicate an employee with an absence problem (and perhaps other motivational problems), whereas the consecutive days absent suggest a different cause of absenteeism. Chadwick-Jones, Brown, Nicholson and Sheppard (1971); Muchinsky (1977) suggest that absence frequency, and absences of short duration in particular, are more reflective of voluntary absenteeism than is the total number of days an employee is absent. They used the time-lost index or absence duration as a measure of involuntary absenteeism. Hammer and Landau (1981) point

out that it would be impossible to strictly categorise frequency of absence as voluntary withdrawal and of time lost as involuntary absenteeism because a frequency index will contain a number of involuntary absences, and time-lost measures will be contaminated by voluntary withdrawal.

The One Day Absence Frequency Rate has been named the "Attitudinal Index" (Huse and Taylor, 1962) and is viewed as reflecting voluntary absenteeism (Chadwick-Jones, Nicholson and Brown, 1982; Hackett and Guion, 1985). This absence is either used by workers to control mood (George, 1989), for example if a worker has been feeling bad at work for a certain period of time, he or she may take one day off work to do something enjoyable, or the absence is motivated by negative attitudes to work (Huse and Taylor, 1962).

However, neither time-lost, absence duration nor frequency indices alone provide a representative picture of absence behaviour. A number of authors (for example, Cheloha and Farr, 1980; Stone, 1980; Muchinsky, 1977), suggested utilising multiple measures of absenteeism in determining the existence of an absenteeism problem.

Latham and Pursell (1975) advocated attendance measures, where the number of people who come to work are counted, as being more reliable than measures of absence. Smulders (1980) however, emphatically stated that attendance

measures are no match for absence measures as it is almost impossible to construct and apply attendance frequency and duration measures.

4.1.2 Time Periods

Longitudinal research designs have been suggested as being more able to determine the causes or predictability of absenteeism, than cross-sectional designs (Breaugh, 1981; Fitzgibbons and Moch, 1980).

To reduce the distributional problems associated with absence measures, absences are often aggregated over long time periods. In some cases, this may centralise the mass of the distribution by reducing the skewness, kurtosis, and truncation; and smoothing the distributional curve (Harrison and Hulin, 1989). Unfortunately, aggregation has some serious handicaps that make it undesirable (Hulin and Rousseau, 1980). For example, when the aggregation period for involuntary absences is changed from one month to one year many of the distributional problems are exacerbated. Secondly, the longer the aggregation period, the less likely it is that possible determinants of absenteeism, measured at the beginning of the period, will affect absence behaviour near the end of the period. Three months is a common aggregation period for absence research (Landy, Vasey and Smith, 1984). Hammer and Landau's (1981) answer to the dilemma regarding the most appropriate time interval for measurement is to use the researcher's discretion in determining "... trade-offs between stability of measure

and the optimal time intervals stipulated by a given research purpose" (p. 580). For Hypothesis 1, where the changes in absence behaviour were being studied, monthly aggregation over a two year period was done. Research by Rushmore and Youngblood (1979) "... indicates that observation periods of one to three years in length are necessary to identify absence-prone employees" (p. 249). The one year aggregation period used in Hypotheses 2 and 3 was largely predetermined by the "natural time frame" (Atkin and Goodman, 1984, p. 50) suggested by the implementation of the negative incentive bonus scheme and need for before and after study conditions.

4.2 Methods of Collecting and Recording Data

Sickness absence information and population profile data were extracted from Confidential Personnel Records for each company employee. The sickness absence information had been recorded as either certified sickness absence or uncertified sickness absence, depending on whether a sick certificate was produced or not. For the research undertaken this differentiation in taxonomy was not made. These Confidential Personnel Records are compiled by the Company's Personnel Officer, of which there had been two during the period under study.

For Hypothesis 1 the extracted information was recorded directly onto an "Employee Absence Record" (see Appendix I) using dBASE III PLUS computer programme. Appendix I shows a close replica

of the form constructed using the data collection programme. This record contained the following information: employee number, department code, date of employment, date for five years employment or termination of service, age (as of 31.08.1987, the first day of the study period), service duration (as of 31.08.1987), sex and race. For the twenty-four month period commencing 31st August 1987 (date according to first day for the production month of September) and finishing 27th August 1989 (the last day for the production month of August) data under the following four classifications were collected:-

Sick Hours of Absence
Number of New Absences
Number of One Day Absences
Normal Work Hours

In recording the data the following system was adhered to:-

(i) One day's absence was recorded as nine hours of absence. The duration of absence was simply taken as a multiple of nine, five days absence making up one week constituted forty-five hours of absence.

(ii) Time off during the working day was not included as a day's absence. Time off authorised in advance for medical appointments or approved personnel business was fully paid.

(iii) If an employee left work, for example at 1.00 p.m. and was subsequently booked off work by a doctor for the following two days, only these following two days were taken as the sickness absence period.

(iv) An absence period that extended over the weekend, for example Thursday, Friday and Monday, was recorded as only one period of absence.

(v) If an absence period extended over two months, the frequency was recorded for the first month, but the hours of absence were recorded according to each month.

(vi) When a father or mother accompanied a child for medical attention it was recorded as sickness absence, rather than as unauthorised absence, even though the parent was not ill. Only a small proportion of absences would have been recorded as such, probably only one or two percent.

(vii) Sickness absence periods of ten days and longer were included in the recording.

(viii) If an employee was transferred his absence data were allocated to the department where the largest proportion of his working time had been spent. When the time period was equal, the most recent department was used.

(ix) Achievable work hours were taken from the "Monthly Absenteeism by Operator Report" for the period from September 1987 through to August 1989. At the same time, the recorded sick hours of absence were compared. Where a difference in transcription occurred the "Monthly Absenteeism by Operator Report" was taken as being the more accurate. However, if the Confidential Personnel Records recorded an absence which was not shown in the

other report that absence was included on the "Employee Absence Record".

Not including the absence hours noted in points (ii) and (iii) would result in a slight underestimation of absence hours (Hammer and Landau, 1981), and was therefore regarded as acceptable.

Unfortunately, the employee absence data available on computer for Gabriel employees, did not include absence frequency, hence the need for manually checking individual absence records by referring to the Confidential Personnel Records.

Once the records for the 107 employees making up the sample population group and the 14 employees making up the "comparison of trend" sample population group had been compiled for Hypothesis 1 it was necessary to combine the data for each of the two groups. Initially it was necessary to collect the data individually, but for analysis the total sick hours of absence per month, total number of new absences per month, total number of one day absences per month and total achievable work hours were required. Only two records containing the monthly summed totals, one for each sample population, were exported to a statistical software programme for analysis.

Data for Hypothesis 2 were recorded, using dBASE III PLUS, Version 1.0 (1986) computer programme, directly onto a format similar to that give in Appendix J. The relevant information regarding employee number, department code, age (as of

28.09.1987, commencement date for the first year of study), service duration (as of 28.09.1987), sex and race was obtained from the Confidential Personnel Records. The aggregate Gross Absence Rate for the year 28.09.1987 through to 2.10.1988 for each employee was calculated from a Gabriel company report entitled Yearly Absenteeism by Work Centre For Year Ending 2.10.1988. The Gross Absence Rate was calculated using the following formula:

$$GAR = \frac{\text{sick hrs absent + unauthorised hrs absent + incomplete shift hrs lost}}{\text{normal work hours}} \times 100\%$$

Sick hours absent included certified and uncertified sickness absence, incomplete shift hours lost included hours lost due to work accidents. Leave authorised in advance, for example annual leave, study or maternity leave was not included, nor were hours late for work.

For the year, 3.10.1988 to 1.10.1989, when Gabriel SA (Pty) Ltd instituted the negative incentive bonus scheme the Gross Absence Rate was available on the Yearly Absenteeism by Operator For Year Ending 1.10.1989 report.

Information was obtained on one hundred Gabriel hourly paid employees constituting the sample population for Hypothesis 3. See Appendix K for a copy of the format used to collect data, again using dBASE III PLUS, Version 1.0 (1986) computer programme. The list containing fifty of the worst absenters and

fifty of the best attenders based on employee's aggregate Gross Absence Rate for the year 3.10.1988 through to 1.10.1989 was provided by the Personnel Manager. Information was collected regarding each employee's name, employee number, department code, sex, age (as of 3.10.1988, commencement date for Hypothesis 3), service duration (as of 3.10.1988) and job grade (as of 3.10.1988) from the Confidential Personnel Records and personnel computer records. The IRP2 tax form yielded number of dependents (as of 3.10.1988) for each employee. A dependent was considered a child under the age of eighteen years. Data for weeks of excess overtime worked by the one hundred employees for the year under study were obtained from the payroll as being the most accurate record of overtime worked. Unfortunately, data for nine weeks of excess overtime data out of the one year study period were not available, probably owing to the change-over in payroll system. This deficiency in data should not influence study results as it applied equally to all 100 employees. The missing weeks were between March and May, 1989.

Collection of data for all three hypotheses was completed by May 1990. Once the information had been checked adequately for irregularities and inaccuracies and irrelevant information removed the data files were exported to Statgraphics: Statistical Graphics System By Statistical Graphics Corporation, Version 4.0 (1989) for analysis.

4.2.1 Reliability of the data collected

"Reliability refers to the stability or consistency of information, that is, the extent to which similar

information is supplied when a measurement is performed more than once" (Abramson, 1984, p. 124). Or more appropriately, applying reliability to absence behaviour "... how consistent is behaviour over time" or "under what circumstances would consistency be observed" (Atkin and Goodman, 1984, p. 88 and 89).

An important feature for reliability of an absenteeism study is the definition and understanding of the terms used. If there are several known definitions of the rate or term being used then the measurement of that rate will vary. Where possible the same definitions used by Gabriel and those used in the study were kept in order to try and reduce misclassification of type of absence. Minor changes in absence policies may also contribute to incorrect measuring, recording and misclassification of absence periods. A review of the absenteeism literature by Muchinsky (1977) found that frequency indices had the highest and most consistent reliability across several studies of absenteeism.

Unfortunately, the number of people involved in recording absenteeism data at Gabriel SA (Pty) Ltd may have contributed to reducing reliability.

Abramson (1984) provides three sources of variation that could affect the reliability of data:-

(i) <u>Variation in the characteristic being measured</u>

Absence behaviour was the characteristic measured in

this study using Sickness Absence Rate, Sickness Absence Frequency Rate, One Day Sickness Absence Frequency Rate and Gross Absence Rate. Though a sick certificate was required to authenticate sickness absence, in some cases it would be questionable whether illness was the actual cause of the absence, resulting in an unreliable sickness absence rate.

The pattern of absence behaviour does not remain constant from one period to another. Atkin and Goodman (1984) go as far as to say "... in most circumstances, test-retest logic is not justified" (p. 92). The results of this study will only reflect Gabriel's absence pattern from September 1987 through to October 1989. It would be unlikely that the results could be duplicated if the following twenty-four or twenty-five months were studied, owing to individual variation in the causes and reasons of absences and to changes in the variables involved.

(ii) <u>The measuring instruments</u>

Three formats were used to collect and record the extracted information from the Confidential Personnel Records and personnel computer records. These were Hypothesis 1 - Employee Absence Record; Hypothesis 2 - Aggregate Gross Absence Rate for Negative Incentive Bonus Scheme Sample Population; Hypothesis 3 - Gabriel Hourly Paid Sample Population. Though great effort was taken to maintain the accuracy of these

records, the information recorded on them would depend upon the accuracy of the information initially transcribed. To improve confidence in the reliability of these records it would have been necessary to refer back to the original clock cards from which this information was obtained. A formidable task and not feasible.

(iii) The persons collecting the information

It is here that the greatest weakness for data reliability would lie. All absence data were extracted from the original weekly clockcards, with sick certificates authenticating the sickness absence periods. Previous Personnel Officers, Personnel Clerks and students have been involved in extracting absence data from these records and recording the information on the Personnel Records and on Computer. Inaccuracies would be due to transcription errors and misclassification of episodes of absence (Rushmore and Youngblood, 1979). Unfortunately it was not possible to check the reliability of all recording from the clock cards.

4.2.2 Validity of data collected

"The validity of a measurement refers to the extent to which it measures the characteristic that the investigator actually wishes to measure" (Abramson, 1984, p. 134). Applying this to absence records, it could be asked: "... if the absence record indicates nothing, was the

person indeed present?" (Atkin and Goodman, 1984, p. 98). The Confidential Personnel Records and the Weekly Clock Cards only portray recorded information regarding the absence or attendance of individuals. To test the validity of these records a study would need to be done to verify the actual presence or absence of the individual. Such a study was not done and it would appear that none or very few of such validity studies have been conducted either (Atkin and Goodman, 1984, p. 98). However, since the Personnel Department monitors the payment of days taken for sickness absence, the Confidential Personnel Records consulted would likely to be close to the truth.

Another aspect of validity concerns the recording of the type of absence. The recording of the type of absence is dependent upon what the absentee claims the reason to be, what management or personnel interprets the reason to be, and what the recorder actually notates. Many claims of absence are not accurate in that the stated reason is not the "real" reason for the absence (Atkin and Goodman, 1984).

"Often there is no practicable way of testing validity, and the investigator has to rely on his judgement or on the results of previous validity tests" (Abramson, 1984, p. 140). The validity of the records was not tested but one would question what noticeable effects would any inaccuracies or misinterpretations have had on the study results. Would the inaccuracy of a small proportion

(presumably) of the data materially change the company absence pattern?

4.3 Response Rate

There was no formal response rate for this study. Sample sizes were predetermined by conditions pertaining to the study. This was a retrospective research project relying on existing records for information and data. For the first hypothesis the sample population consisted of 107 permanent, hourly paid industrial council rated employees, and 14 permanent, hourly paid non-industrial council rated employees made up the "comparison of trend" population group. These employees had a service duration of less than five years and were continuously employed for the two year study period (31.08.1987 to 27.08.1989).

Three hundred and thirty-one (331) permanent, hourly paid employees qualified to form the negative incentive bonus scheme sample population for Hypothesis 2. Employees who were not continuously employed for the two year study period from 28.09.1987 to 1.10.1989 were excluded. Service duration was not a qualifying factor for the second hypothesis. Further analysis was conducted on 185 of these employees with longer than five years service duration.

The one hundred employees making up the two sample groups for the third hypothesis were permanent, hourly paid, and in continuous employment for the year under investigation. One further requirement was a service duration of longer than one

year. These one hundred employees were composed of fifty of the best attenders and fifty of the worst for the year from 3.10.1988 to 1.10.1989.

All information required on the employees eligible for the different sample populations was available from personnel records.

4.4 Statistical Analysis

The most serious methodological problems arise from the distribution of sample data. Measures of absence are rarely normally distributed (Hammer and Landau, 1981; Landy, Vasey and Smith, 1984). They are almost always truncated, discrete, positively skewed, and leptokurtotic by the presence of a large number of zero values. This is because most people in a sample population have low or zero absenteeism rates, whereas only a minority are absent frequently. Steers and Rhodes (1984) report that fewer than three percent of the scheduled workdays in most United State's organisations are spent away from work. Ordinary statisical remedies are seldom helpful for distributions of low base-rate events. Logarithmic or square-root transformations can sometimes alleviate skewness and kurtosis, but no reasonable transformation can alleviate truncation and discreteness (Harrison and Hulin, 1989).

In normal distributions measures of skewness and kurtosis are zero. When skewness is positive, the distribution is skewed to

the left, when skewness is negative, the distribution is skewed to the right. Similarly, if kurtosis is greater than zero, the distribution is more highly peaked than the normal, and when kurtosis is less than zero, the distribution is flatter (Hammer and Landau, 1981). Kendall and Stuart (1958) suggested that when skewness approaches 2 and kurtosis is greater than 5, there is considerable skewness and leptokurtosis meaning that the absence data does not follow a normal distribution.

Hammer and Landau (1981, p. 578) found that some sample distributions, particularly those using voluntary and involuntary hours, and involuntary days, of absence contained extreme values (outliers) which were primarily responsible for the skewness and leptokurtosis. A few extreme values are extremely influential in determining the properties of the sample distributions (such as the mean and the variance) on which the calculations of correlation and regression coefficients are built. They may cause either an over- or underestimation of the relationship between the dependent and independent variable making significance tests of the regression analysis meaningless. A regression plot will be influenced by the extreme values at the tail ends of the non-normal distribution, and the slope of the line will reflect their presence. The customary measures of central tendency give a highly inaccurate picture of the pattern of absenteeism with these non-normal distributions.

Their study also showed that the frequency index was more stable over time and suffered less from skewness and leptokurtosis than

time-lost indices (Hammer and Landau, 1981, p. 580). Frequency indices would appear to be preferable to time-lost measures of both voluntary and involuntary withdrawal, unless prediction and explanation of absence duration were being researched and reported on (Smulders, 1980).

Where possible in the study logarithmic transformations were performed to reduce skewness and kurtosis before the data were analysed further. This was applied succesfully to the first hypothesis. However, zero values for the Gross Absence Rates in Hypotheses 2 and 3 did not permit logarithmic transformations of the rates. Limited regressional analysis was cautiously applied in Hypothesis 3, taking cognition of its limitations when applied to absence data.

4.4.1 Hypothesis 1

To determine a change in the sickness absence pattern it was necessary to analyse whether the second twelve months of the study period were significantly different from the first twelve months of the study period regarding the three absence rates used. There were two sample groups, one with 107 employees making up the sample population group and the other with 14 employees making up the "comparison of trend" sample population group. Individual monthly absence data were summed to give monthly totals for sick hours of absence, number of new absences, number of one day absences, and normal work hours. Using Statgraphics: Statistical Graphics System By Statistical Graphics Corporation, Version 4.0 (1989), the three absence rates

were calculated: Sickness Absence Rate, Sickness Absence Frequency Rate and One Day Sickness Absence Frequency Rate, for the twenty-four month period. Because there were now only twenty-four values for each rate, it was decided to use Student's t test (Student, 1908) and particularly the application for paired-sample observations where "... the significance of the difference between the means of the two sets of observations" is determined (Swinscow, 1981, p. 33). Degrees of freedom (DF) was taken as n - 1, n being the number of pairs in the sample. The value of t, at n - 1, gives the level of significance p. When p has a value of less than 0.05 this is regarded as significant, and highly significant when p is less than 0.001. The first twelve months formed the one part of the pair or one set of observations and the second twelve months formed the other part of the pair or the second set of observations.

Since absence data do not generally follow normal distribution (Hammer and Landau, 1981; Landy, Vasey and Smith, 1984), the simple Sign Test was used to assess "... the possible statistical significance of differences between groups of data in which a normal distribution is not assumed", (Pipkin, 1984, p. 46). The purpose of this was to seek confirmation of the results given by the Student's t test. Using Sickness Absence Rate, a positive sign was awarded if the difference in Sickness Absence Rate was greater than 40% between the first and second year of study for the twelve months. For n = 12, if only two or less signs differ, the Sickness Absence Rate is

significantly different at the 0.05 level of significance according to the Sign Test table (Pipkin, 1984, p. 125).

Component Line Charts were constructed to display the three absence rates over time. The data were smoothed to minimize the effect of absence data instability. Three monthly moving averages were calculated using Statgraphics: Statistical Graphics System By Statistical Graphics Corporation, Version 4.0 (1989). The moving average is calculated by averaging one value on either side of the target value. "The simple moving average creates a smoothed time series vector equal in length to the original vector. At the endpoints of the time series, the average is calculated using a linear extrapolation of the observed values" (Statgraphics: Statistical Graphics System By Statistical Graphics Corporation, Version 4.0, 1989, p. 18-2).

4.4.2 Hypothesis 2

The analysis used in Hypothesis 2 was the same as that for Hypothesis 1, where the significant difference in means of the paired-sample was determined using Student's t test, and where degrees of freedom (DF) = n - 1. The value of t, at n - 1, gives the level of significance p. When p has a value of less than 0.05 this is regarded as significant, and highly significant when p is less than 0.001. The aggregate Gross Absence Rate of 331 employees for the second year of the negative incentive bonus scheme was compared with the aggregate Gross Absence Rate of the

previous year when no scheme existed. The significance of the difference in the means of the GAR for the two years was calculated. The methodology was repeated for the second sample of 185 employees with more than five years service duration.

When displaying the frequency for the Gross Absence Rates, 3% Gross Absence Rate was highlighted as being the percentage after which the penalty affect of the negative incentive bonus scheme became operative.

4.4.3 Hypothesis 3

For Hypothesis 3 there were two sample population groups of fifty employees each. The objective was to determine whether there were significant differences in the distribution of potentially determining variables between worker groups with high Gross Absence Rates and those with low Gross Absence Rates, for the period from 3.10.1988 to 1.10.1989. Two-sample analysis was used to calculate the significance of the differences in the distribution of the variables. "The two-sample analysis procedure estimates and tests the means and variances of two samples" (Statgraphics: Statistical Graphics System By Statistical Graphics Corporation, Version 4.0, 1989, p. 11-8). Student's t test for hypotheses concerning the differences between the two means is calculated, where degrees of freedom (DF) = n - 1, n being the number of observations for each sample.

Two-sample analysis was applied to the continuous variables of age, service duration and number of weeks of excess overtime worked. Chi-Square was used to test for the significance between the proportions of the discrete variables of job grade, number of dependents and sex. "The Chi-Square statistic is defined as the sum of observed (frequencies) minus expected frequencies squared, each divided by the expected value" (Statgraphics: Statistical Graphics System By Statistical Graphics Corporation, Version 4.0, 1989, p. 20-8). The minimum value allowed for a group of frequencies is 5.

Simple Regression analysis was applied relating the dependent variable, the Gross Absence Rate, to the independent variable of number of weeks excess overtime for the male only sample groups. When the variables under study are normally distributed, Pearson's correlation would be used. For non-normally distributed variables, a non-parametric test of correlation, for example Spearman's rank correlation, is applied.

The symbol used to denote the Pearson's correlation is r, and for Spearman's rank correlation it is r_s. The correlation coefficient is measured on a scale that varies from +1 through 0 to -1. Complete correlation between two variables is expressed by +1 or -1. When one variable increases as the other increases the correlation is positive. When one decreases as the other increases the

correlation coefficient is negative. Complete absence of correlation is represented by 0 (Swinscow, 1981).

In testing for significance of the correlation Student's t test was used, being appropriate for a sample size of less than 30. The value of t, at n - 2, gave the level of significance p. When p has a value of less than 0.05 this is regarded as significant, and highly significant when p is less than 0.001. However, "... the existence of a statistically significant correlation cannot be taken as evidence of causality in relation to non-experimental data" (Pipkin, 1984, p. 91), such as are used in this study.

The continuous variables (age, service duration, number of weeks excess overtime) and discrete variables (number of dependents and job grade) for the two sample groups were described using mean, median, standard deviation, minimum and maximum values.

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CHAPTER 5

RESULTS

CHAPTER 5

RESULTS

5.1 Introduction

The Gross Absence Rate, Sickness Absence Rate and Overtime Rate for the entire company of hourly paid employees is given before presenting the main results of the study. This provides a brief background to Gabriel SA (Pty) Ltd's worker population's absence behaviour over the two year study period from 31 August 1987 to 1 October 1989. The dates follow the company's financial years.

Table 2: GAR (%) FOR GABRIEL HOURLY PAID EMPLOYEES

	1987-1988	1988-1989
Oct	5.3	6.0
Nov	4.1	6.7
Dec	5.1	5.1
Jan	4.9	4.9
Feb	5.0	6.3
Mar	4.8	5.3
Apr	5.1	5.5
May	6.1	5.4
Jun	5.6	5.7
Jul	5.2	5.9
Aug	4.6	5.5
Sep	5.3	7.5

There was a 14.2% increase in GAR from 5.1% to 5.8% for the two years of study, thus showing an upward trend in absence behaviour. Statistical analysis of the increase would be invalid owing to the changing employee population over this

period. The mean and medians were fairly constant, with the values for skewness and kurtosis well within acceptable limits for a normal distribution. Kendall and Stuart (1958) suggested that when skewness approaches two and kurtosis is greater than five, the distribution no longer be considered normal.

Table 3: STATISTICS SUMMARY OF GAR (%) FOR GABRIEL HOURLY PAID EMPLOYEES

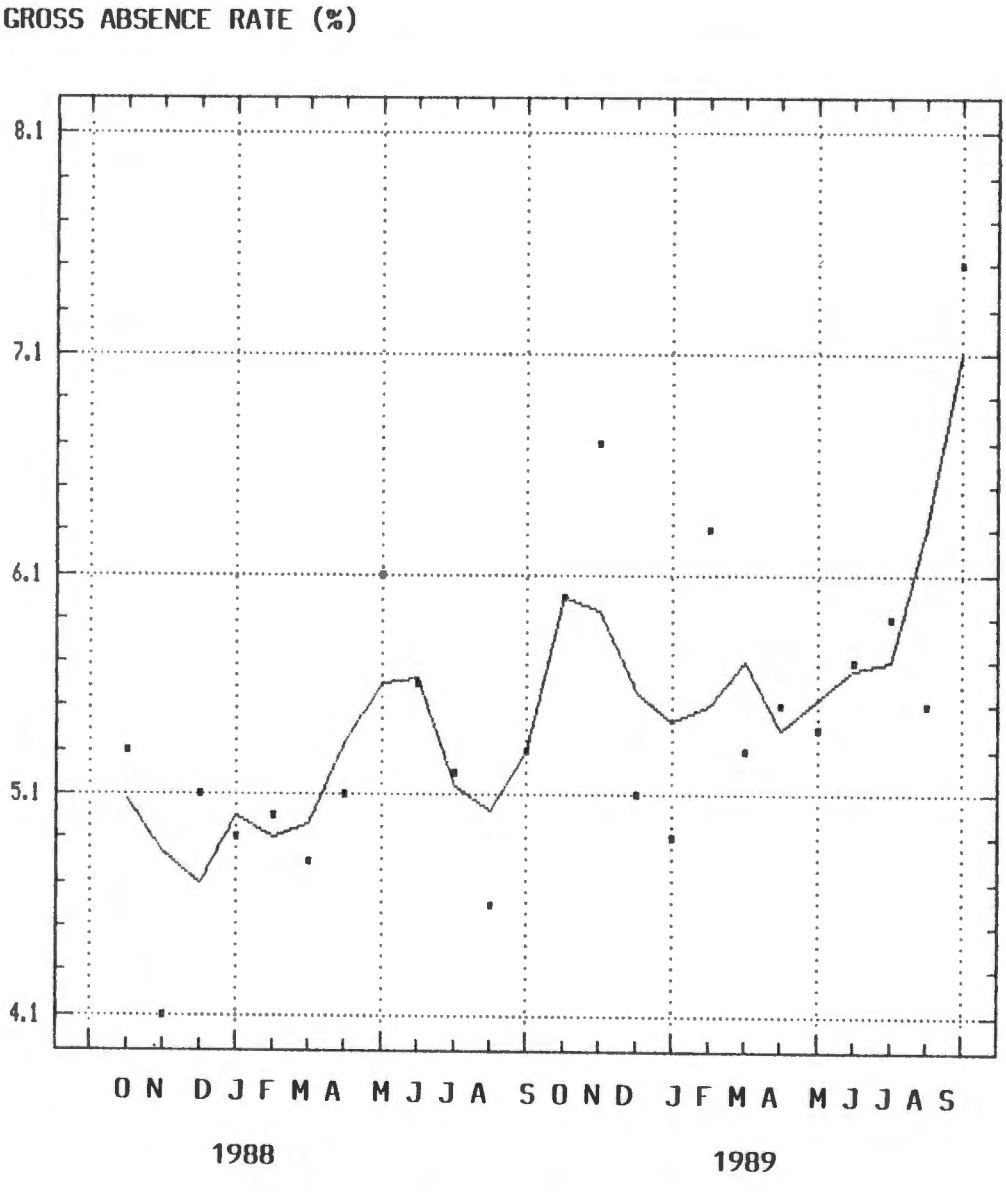
Statistics Summary	Oct87-Sep88	Oct88-Sep89
Sample size	12.0	12.0
Mean	5.1	5.8
Median	5.1	5.6
Standard deviation	0.5	0.7
Minimum	4.1	4.9
Maximum	6.1	7.5
Skewness	0.04	1.2
Kurtosis	1.4	1.3

Component Line Charts were constructed to display the rates over time. The data were smoothed by calculating three monthly moving averages using Statgraphics: Statistical Graphics System By Statistical Graphics Corporation, Version 4.0 (1989). By smoothing the data the trend in behaviour becomes more apparent.

See Figure 3 (page 5.3) displaying the three monthly moving average of Gross Absence Rate for Gabriel hourly paid employees.

Despite using a three monthly moving average the graph line is fairly erratic. There are notable dips in the line for the year ends of 1987 and 1988. The majority of employees take annual leave over December and January, and this appears to coincide with a decrease in the amount of absence taking. For 1988, there was an increase in absence rate over the winter months of

FIGURE 3: 3 MONTHLY MOVING AVERAGE OF GROSS ABSENCE RATE FOR GABRIEL HOURLY PAID EMPLOYEES



May and June, agreeing with Dachler, Hammer, Mobley and Schneider (1970), who also found that both voluntary and involuntary absenteeism varied with the seasons. The rate lowered again as the financial year closed at the end of September. The 1987/1988 Gross Absence Rate, being a qualifying criterion determining the annual bonus, may have influenced absence behaviour for August and September. Once the financial year for 1988/1989 began GAR again climbed. The customary dip in absence occurred over December and January, but the winter high was not as obvious as the soar in GAR at the financial year end in September. The hike in GAR is surprising considering that the negative incentive bonus scheme was operative, where each employee's bonus would be determined by their absence behaviour over the previous twelve months. The results of the study for Hypothesis 2 illustrate this behaviour more clearly. What is apparent is a markedly increasing trend in absence behaviour over the whole period.

Overall Sickness Absence Rates for the two years show a similar upward trend in sickness absence behaviour. The data for Sickness Absence Rate are given in Table 4.

There is a 22.1% increase in mean Sickness Absence Rates over the two financial years, from 3.5% to 4.2%. The median shows a similar increase. The values for skewness and kurtosis are within acceptable limits for normal distribution, with the first year having a positive skewness (0.1) and the second year a negative one (-1.5).

Table 4: SAR (%) FOR GABRIEL HOURLY PAID EMPLOYEES

	1987-1988	1988-1989
Oct	4.1	4.7
Nov	2.9	5.5
Dec	2.6	3.9
Jan	2.7	2.1
Feb	3.3	4.1
Mar	3.6	4.5
Apr	3.9	4.5
May	4.3	4.4
Jun	4.4	4.3
Jul	3.1	4.8
Aug	3.0	4.0
Sep	3.7	4.1

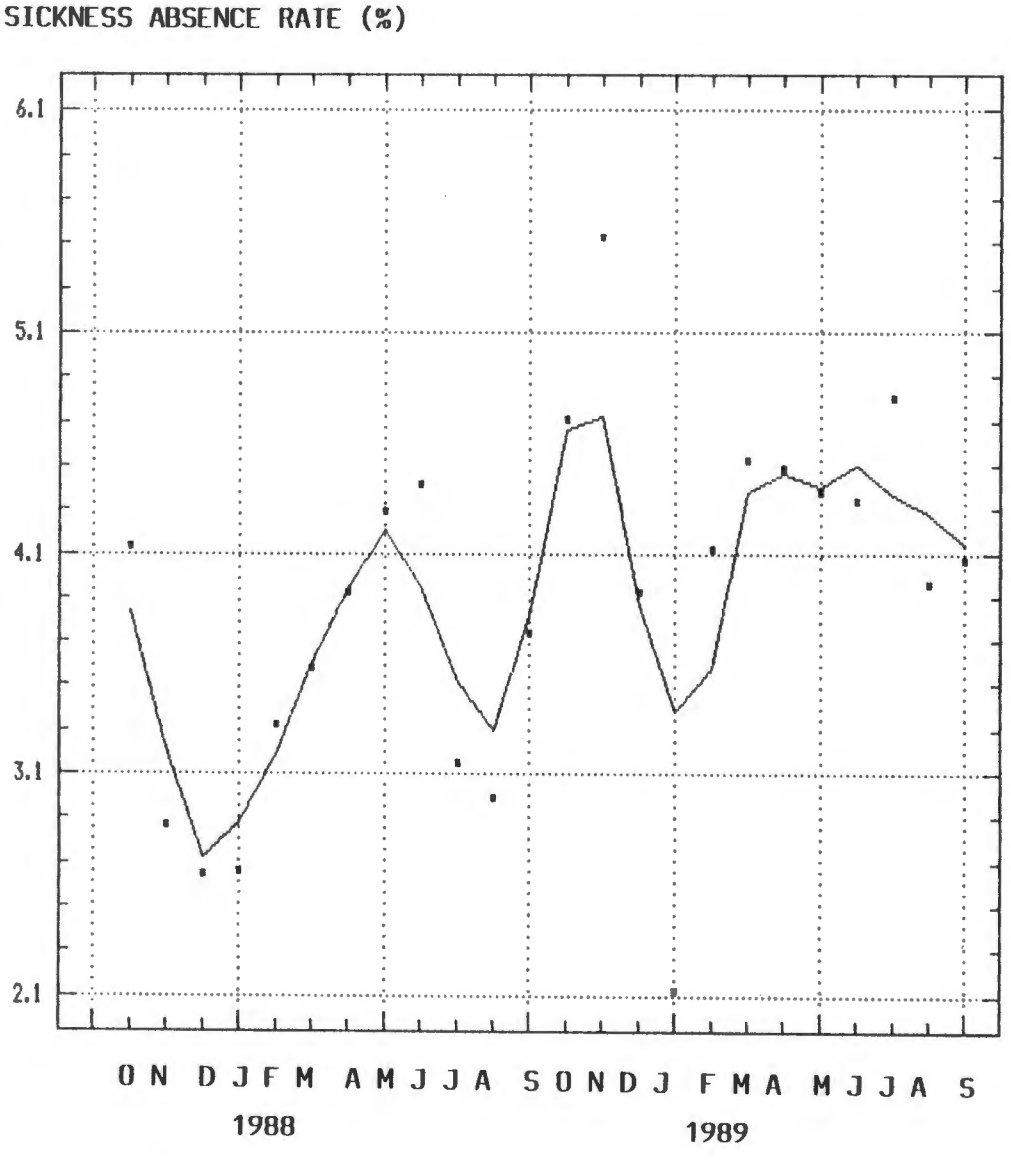
Table 5: STATISTICS SUMMARY OF SAR (%) FOR GABRIEL HOURLY PAID EMPLOYEES

Statistics Summary	Oct87-Sep88	Oct88-Sep89
Sample size	12.0	12.0
Mean	3.5	4.2
Median	3.4	4.4
Standard deviation	0.6	0.8
Minimum	2.7	2.1
Maximum	4.4	5.5
Skewness	0.1	-1.5
Kurtosis	-1.4	4.8

Please see Figure 4 (page 5.6) for a graphical representation of the three monthly moving average of Sickness Absence Rate for Gabriel hourly paid employees. The year end lows in SAR are particularly noticeable, as well as the dip in rates over July, August and September marking the financial year end of 1987/1988. The Sickness Absence Rates were high over the autumn and winter months of April, May and June. Sickness absence decreased less markedly at the end of the second financial year.

In contrast, there was a steady decline in the amount of overtime worked, taken as a percentage excess of normal working

FIGURE 4: 3 MONTHLY MOVING AVERAGE OF SICKNESS ABSENCE RATE FOR GABRIEL HOURLY PAID EMPLOYEES



hours. The monthly rates for overtime and statistics summary are given below. There is a 23.3% decrease in means from 17.2% for the first year to 13.2% for the second in this study. The rates follow a fairly normal distribution with low values for skewness and kurtosis. The distribution is skewed to the right, with no zero values.

Table 6: OVERTIME AS PERCENTAGE EXCESS OF NORMAL WORKING HOURS FOR GABRIEL HOURLY PAID EMPLOYEES

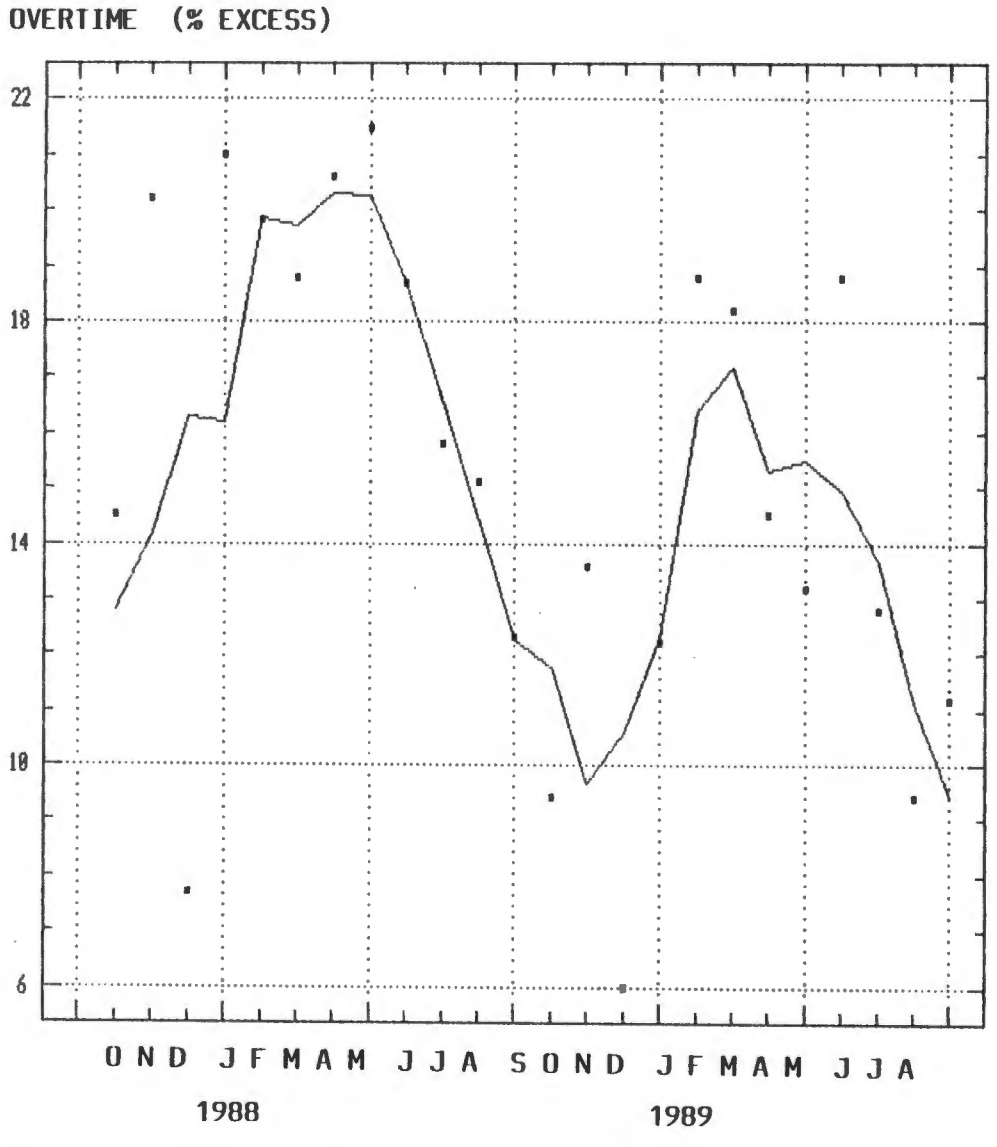
	1987-1988	1988-1989
Oct	14.5	9.4
Nov	20.2	13.6
Dec	7.7	6.0
Jan	21.0	12.2
Feb	19.8	18.8
Mar	18.8	18.2
Apr	20.6	14.5
May	21.5	13.2
Jun	18.7	18.8
Jul	15.8	12.8
Aug	15.1	9.4
Sep	12.3	11.2

Table 7: STATISTICS SUMMARY OF OVERTIME AS % EXCESS OF NORMAL WORKING HOURS FOR GABRIEL HOURLY PAID EMPLOYEES

Statistics Summary	Oct87-Sep88	Oct88-Sep89
Sample size	12.0	12.0
Mean	17.2	13.2
Median	18.8	13.0
Standard deviation	4.2	4.0
Minimum	7.7	6.0
Maximum	21.5	18.8
Skewness	-1.1	-0.0007
Kurtosis	0.8	-0.5

See Figure 5 (page 5.8) for the three monthly moving average of overtime as percentage excess of normal working hours.

FIGURE 5: 3 MONTHLY MOVING AVERAGE OF OVERTIME AS PERCENTAGE EXCESS OF NORMAL WORKING HOURS



The graphical outline for the two years is similar. Both show considerable amounts of overtime worked over the months of March to July, with sharply decreasing overtime worked near the financial year end. Large amounts of overtime worked would negatively influence the Productivity Index and consequently the General Incentive Bonus. The main point to note is the downward trend in the amount of overtime worked for the second year of study.

5.1 Hypothesis 1

The first hypothesis and objective are repeated for clarity. Hypothesis 1: The introduction of sick payment from the first day of sickness absence as opposed to payment from only the third day of sickness absence, effective from 29.08.1988, for employees with less than five years service duration, tends to increase the number of sick days taken. Only employees with less than five years service duration were affected by this change in sick pay policy.

Objective 1: To determine whether the introduction of sick payment from the first day of sickness absence, for hourly paid employees with less than five years service duration, influenced the sickness absence pattern of these employees. The measurements Sickness Absence Rate, Sickness Absence Frequency Rate and One Day Sickness Absence Frequency Rate were used to describe the sickness absence pattern.

Firstly, the sample population of one hundred and seven hourly paid, industrial council employees with less than five years service, and the "comparison of trend" sample population of fourteen hourly paid, non-industrial council employees with less than five years service are described.

The sample population was composed of ninety-four (87.9%) male employees and thirteen (12.1%) females. The majority (95.3%) of the sample population were coloured people, with only five (4.7%) white employees. The mean age was 25.8 years with a mean service duration of 1.2 years. Forty-three (40.2%) employees were aged between twenty-one and twenty-five years, with twenty-eight (26.2%) under the age of twenty years. All data pertaining to personal characteristics were taken as on commencement day of study, 31st August 1987.

Table 8: AGE AND SERVICE DURATION OF SAMPLE POPULATION

Statistics Summary	Age(yrs)	Service Duration(yrs)
Sample size	107.0	107.0
Mean	25.8	1.2
Median	23.0	1.0
Standard deviation	8.1	0.4
Minimum	17.0	1.0
Maximum	61.0	2.0

Table 9: FREQUENCY TABULATION OF AGE (YEARS) FOR SAMPLE POPULATION

Class	Lower Limit	Upper Limit	Frequency	Relative Percentage
at or below		20.0	28.0	26.2
1	21.0	25.0	43.0	40.2
2	26.0	30.0	13.0	12.2
3	31.0	35.0	10.0	9.4
4	36.0	40.0	7.0	6.5
above	40.0		6.0	5.6

The "comparison of trend" sample population group was considerably smaller than the sample population group with only fourteen employees. These non-industrial council employees were male, eight coloured and six black people. Mean age of 26.7 years was only one year greater than for the sample population and the mean service duration was also very similar at 1.1 years. Again the majority (35.7%) of employees were aged between twenty-one and twenty-five years, though a smaller proportion (14.3%) were aged under twenty years.

Table 10: AGE AND SERVICE DURATION OF COMPARISON OF TREND SAMPLE POPULATION

Statistics Summary	Age(yrs)	Service Duration(yrs)
Sample size	14.0	14.0
Mean	26.7	1.1
Median	25.0	1.0
Standard deviation	6.4	0.3
Minimum	19.0	1.0
Maximum	37.0	2.0

Table 11: FREQUENCY TABULATION OF AGE (YEARS) FOR "COMPARISON OF TREND" SAMPLE POPULATION

Class	Lower Limit	Upper Limit	Frequency	Relative Percentage
at or below		20.0	2.0	14.3
1	21.0	25.0	5.0	35.7
2	26.0	30.0	3.0	21.4
3	31.0	35.0	2.0	14.3
4	36.0	40.0	2.0	14.3
above	40.0		0.0	0.0

Sickness Absence Rate for Sample Population

The statistics summary shows similar mean, median and mode values for the Sickness Absence Rate and low values for skewness (1.1 and 0.4 for the first and second years respectively) and

kurtosis (0.6 and -1.3 for the first and second years respectively) suggesting normal distribution. The mean monthly SAR for the second year (4.1%) is double the rate for the first year of study (2.1%) at a 100.6% increase in rates. The doubling in rates also appears in the median and mode values. Log Sickness Absence Rate is given and used on recommendation from the literature as this helps to alleviate skewness and kurtosis effects (Harrison and Hulin, 1989).

Table 12: SICKNESS ABSENCE RATE (%) FOR SAMPLE POPULATION

	1987-1988	1988-1989
Sep	1.3	3.4
Oct	2.2	4.9
Nov	1.5	4.6
Dec	1.2	3.8
Jan	1.8	3.1
Feb	1.2	5.4
Mar	3.9	5.4
Apr	2.1	3.9
May	3.3	3.9
Jun	2.5	4.7
Jul	2.2	3.2
Aug	1.3	3.2

Table 13: STATISTICS SUMMARY OF SICKNESS ABSENCE RATE AND LOG SICKNESS ABSENCE RATE FOR SAMPLE POPULATION

	First Year		Second Year	
Statistics Summary	SAR	LogSAR	SAR	LogSAR
Sample size	12.0	12.0	12.0	12.0
Mean	2.1	0.6	4.1	1.4
Median	2.0	0.7	3.9	1.4
Mode	1.5	0.4	3.8	1.3
Standard deviation	0.9	0.4	0.8	0.2
Skewness	1.1	0.5	0.4	0.2
Kurtosis	0.6	-0.8	-1.3	-1.5

Student's t test (Student, 1908) for paired-sample observations was then used to determine whether there was a significant

difference in the mean for the first year of observations compared to the mean for the second year of observations.

Table 14: PAIRED-SAMPLE ANALYSIS OF SAR (%) FOR SAMPLE POPULATION

Null Hypothesis:	There is no significant difference in the mean value of Sickness Absence Rates for the second year of study compared to the first year of study.
Sample Statistics:	SAR (1st 12 months) - SAR (2nd 12 months) Number of observations 12.000 Mean difference -2.066 Median -1.971 Standard deviation 0.982
Confidence Interval	for the difference in means: 95 percent -2.690 -1.442 at 11 degrees of freedom
Significance Test:	Level of significance = 0.050 Computed t statistic = -7.290 Significance level, p = 0.00002
Results:	Computed t value highly significant so reject Null Hypothesis.

The paired-sample analysis results for Sickness Absence Rate of the sample population gives a highly significant value, $p < 0.001$, for the t test. The Null Hypothesis is rejected, meaning that the mean value of Sickness Absence Rate for the second year of study was highly significantly greater than the mean value of Sickness Absence Rate for the first year.

The test was repeated using the logarithmic values of the sickness absence rates.

Table 15: PAIRED-SAMPLE ANALYSIS OF LOG SAR FOR SAMPLE POPULATION

Null Hypothesis: There is no significant difference in the

mean value of Logarithmic Sickness Absence Rates for the second year of study compared to the first year of study.

	LOG SAR (1st 12 months) - LOG SAR (2nd 12 months)	
Sample Statistics:	Number of observations	12.000
	Mean difference	-0.749
	Median	-0.723
	Standard deviation	0.385

Confidence Interval for the difference in means: 95 percent
-0.994 -0.504 at 11 degrees of freedom

Significance Test:	Level of significance =	0.050
	Computed t statistic =	-6.733
	Significance level, p =	0.00003

Results: Computed t value highly significant so reject Null Hypothesis.

The results for the paired-sample analysis show a highly significant t value ($p < 0.001$) so rejecting the Null Hypothesis. The means of the logarithmic values for the Sickness Absence Rates for the second and first years of study are not the same. The conclusion is that Sickness Absence Rates for the second year, when sick payment was available from the first day of sickness absence, were significantly higher than the rates for the first year, when sick payment was only received from the third day of sick absence. Replicating the analysis using logarithmic values for Sickness Absence Rate did not noticeably improve the significance of the results, and this practice was, therefore, not continued.

Owing to the small sample size and as normal distribution cannot be assumed for absence data, a non-parametric test, the Sign Test, was performed to seek confirmation of the results.

Table 16: SIGN TEST FOR COMPARISON OF TWO SETS OF OBSERVATIONS OF SAR (%) IN SAMPLE POPULATION

Definition: Award a positive sign if the difference in Sickness Absence Rates is greater than 40% between the first and second year of study.

Null Hypothesis: There is no change in SAR at a 40% criterion level between the first and second year of study.

Month	SAR 1987/88	40% Increase	SAR 1988/89	Signs
Sep	1.31	1.83	3.37	+
Oct	2.17	3.04	4.87	+
Nov	1.50	2.10	4.56	+
Dec	1.24	1.74	3.80	+
Jan	1.85	2.59	3.14	+
Feb	1.22	1.71	5.42	+
Mar	3.91	5.47	5.38	-
Apr	2.08	2.91	3.94	+
May	3.27	4.58	3.86	-
Jun	2.53	3.54	4.70	+
Jul	2.25	3.15	3.22	+
Aug	1.33	1.86	3.20	+

Number of positive differences: 10
Number of negative differences: 2
n = 12 pairs

Results: Sickness Absence Rates for the second year of study are significantly different from the rates for the first year, at the 0.05 level of significance, using the Sign Test table (Pipkin, 1984, p. 125).
Therefore, reject Null Hypothesis.

The Sign Test confirms the results for the paired-sample analysis. The Sickness Absence Rates for the second year of study were significantly higher than those for the first year. The Sign Test on logarithmic transformations of the rates was not conducted.

Sickness Absence Frequency Rate for Sample Population

The statistics summary show very similar low mean, median and

mode values for the Sickness Absence Frequency Rate and low values for skewness (0.12 and -0.29 for the first and second years respectively) and kurtosis (-1.28 and -0.31 for the first and second years respectively). The percentage increase of the Sickness Absence Frequency Rate for the second year was 138.3%. The mean value for monthly SAFR more than doubled its rate for the second year compared to that of the first year by increasing from 0.14 to 0.33 in the second year.

Table 17: SICKNESS ABSENCE FREQUENCY RATE FOR SAMPLE POPULATION

	1987-1988	1988-1989
Sep	0.09	0.34
Oct	0.17	0.41
Nov	0.13	0.44
Dec	0.07	0.30
Jan	0.10	0.20
Feb	0.15	0.41
Mar	0.21	0.32
Apr	0.16	0.38
May	0.21	0.30
Jun	0.11	0.36
Jul	0.20	0.29
Aug	0.08	0.26

Table 18: STATISTICS SUMMARY OF SICKNESS ABSENCE FREQUENCY RATE FOR SAMPLE POPULATION

Statistics Summary	First Year SAFR	Second Year SAFR
Sample size	12.00	12.00
Mean	0.14	0.33
Median	0.14	0.33
Mode	0.11	0.41
Standard deviation	0.05	0.07
Skewness	0.12	-0.29
Kurtosis	-1.28	-0.31

Student's t Test (Student, 1908) for paired-sample observations was used to determine whether a significant difference existed

in the mean for the first year of observations compared to that for the second year of observations.

Table 19: PAIRED-SAMPLE ANALYSIS OF SAFR FOR SAMPLE POPULATION

Null Hypothesis:	There is no significant difference in the mean value of Sickness Absence Frequency Rates for the second year of study compared to the first year of study.
Sample Statistics:	SAFR (1st 12 months) - SAFR (2nd 12 months) Number of observations 12.000 Mean difference -0.194 Median -0.229 Standard deviation 0.078
Confidence Interval	for the difference in means: 95 percent -0.244 -0.144 at 11 degrees of freedom
Significance Test:	Level of significance = 0.050 Computed t statistic = -8.568 Significance level, p = 0.000003
Results:	Computed t value highly significant so reject Null Hypothesis.

The paired-sample analysis results for Sickness Absence Frequency Rate of the sample population gives a highly significant value, $p < 0.001$, for the t test. The Null Hypothesis is rejected, which means that there was a highly significant increase in means of Sickness Absence Frequency Rate between the first and second years of study.

The Sign Test was performed to strengthen the test results.

Table 20: SIGN TEST FOR COMPARISON OF TWO SETS OF OBSERVATIONS OF SAFR IN SAMPLE POPULATION

Definition:	Award a positive sign if the difference in Sickness Absence Frequency Rates is greater than 40% between the first and second year of study.

Null Hypothesis: There is no change in SAFR at a 40% criterion level between the first and second year of study.

Month	SAFR1987/88	40% Increase	SAFR1988/89	Signs
Sep	0.09	0.13	0.34	+
Oct	0.17	0.24	0.41	+
Nov	0.13	0.18	0.44	+
Dec	0.07	0.10	0.30	+
Jan	0.10	0.14	0.20	+
Feb	0.15	0.21	0.41	+
Mar	0.21	0.29	0.32	+
Apr	0.16	0.22	0.38	+
May	0.21	0.29	0.30	+
Jun	0.11	0.15	0.36	+
Jul	0.20	0.28	0.29	+
Aug	0.08	0.11	0.26	+

Number of positive differences: 12
Number of negative differences: 0
n = 12 pairs

Results: Sickness Absence Frequency Rates for the second year of study were significantly different from the rates for the first year, at the 0.001 level of significance, using the Sign Test table (Pipkin, 1984, p. 125). Therefore, Null Hypothesis is rejected.

The Sign Test confirms the results for the paired-sample analysis. The increase in Sickness Absence Frequency Rates for the second year of study compared to those for the first year is highly significant.

One Day Sickness Absence Frequency Rate for Sample Population

Again, the statistics summary show very similar low mean, median and mode values for the One Day Sickness Absence Frequency Rate and low values for skewness (0.79 and 0.24 for the first and

second years respectively) and kurtosis (0.46 and -1.45 for the first and second years) suggesting normal distribution. The percentage increase in the One Day Sickness Absence Frequency Rate for the second year was 128.8%, showing that the rates had more than doubled for the second year. The mean monthly ODSAFR increased from 0.05 to 0.11 in the second year.

The One Day Sickness Absence Frequency Rates for the two years are given as well as the statistics summary.

Table 21: ONE DAY SICKNESS ABSENCE FREQUENCY RATE FOR SAMPLE POPULATION

	1987-1988	1988-1989
Sep	0.03	0.07
Oct	0.07	0.17
Nov	0.06	0.14
Dec	0.02	0.10
Jan	0.02	0.06
Feb	0.09	0.14
Mar	0.06	0.07
Apr	0.05	0.10
May	0.05	0.12
Jun	0.03	0.16
Jul	0.05	0.07
Aug	0.04	0.06

Table 22: STATISTICS SUMMARY OF ONE DAY SICKNESS ABSENCE FREQUENCY RATE FOR SAMPLE POPULATION

Statistics Summary	First Year ODSAFR	Second Year ODSAFR
Sample size	12.00	12.00
Mean	0.05	0.11
Median	0.05	0.10
Mode	0.05	0.06
Standard deviation	0.02	0.04
Skewness	0.79	0.24
Kurtosis	0.46	-1.45

Paired-sample analysis was used to determine whether there was a significant difference in means between the first and second years of observations.

Table 23: PAIRED-SAMPLE ANALYSIS OF ONE DAY SICKNESS ABSENCE FREQUENCY RATE FOR SAMPLE POPULATION

Null Hypothesis: There is no significant difference in the mean value of One Day Sickness Absence Frequency Rates for the second year of study compared to the first year of study.

ODSAFR (1st 12 months) - ODSAFR (2nd 12 months)

Sample Statistics:	
Number of observations	12.000
Mean difference	-0.059
Median	-0.051
Standard deviation	0.035

Confidence Interval for the difference in means: 95 percent
-0.081 -0.037 at 11 degrees of freedom

Significance Test:
Level of significance = 0.050
Computed t statistic = -5.851
Significance level, p = 0.0001

Results: Computed t value highly significant so reject Null Hypothesis.

The paired-sample analysis results for the One Day Sickness Absence Frequency Rates of the sample population gives a highly significant value, $p < 0.001$, for the t test. The Null Hypothesis is rejected, meaning there was a highly significant increase in the mean value of the One Day Sickness Absence Frequency Rates for the first and second year of study.

The non-parametric Sign Test for small sample analysis was then performed.

Table 24: SIGN TEST FOR COMPARISON OF TWO SETS OF OBSERVATIONS OF ODSAFR IN SAMPLE POPULATION

Definition: Award a positive sign if the difference in One Day Sickness Absence Frequency Rates is greater than 40% between the first and second year of study.

Null Hypothesis: There is no change in ODSAFR at a 40% criterion level between the first and second year of study.

Month	ODSAFR87/88	40% Increase	ODSAFR88/89	Signs
Sep	0.03	0.04	0.07	+
Oct	0.07	0.10	0.17	+
Nov	0.06	0.08	0.14	+
Dec	0.02	0.03	0.10	+
Jan	0.02	0.03	0.06	+
Feb	0.09	0.13	0.14	+
Mar	0.06	0.08	0.07	-
Apr	0.05	0.07	0.10	+
May	0.05	0.07	0.12	+
Jun	0.03	0.04	0.16	+
Jul	0.05	0.07	0.07	0
Aug	0.04	0.06	0.06	0

Number of positive differences: 9
Number of negative differences: 1
Tied pairs ignored: 2
n = 10 pairs

Results: One Day Sickness Absence Frequency Rates for the second year of study are significantly greater than the rates for the first year, at the 0.05 level of significance, using the Sign Test table (Pipkin, 1984, p. 125).
Therefore, Null Hypothesis is rejected.

The Sign Test confirms the results for the paired-sample analysis. The One Day Sickness Absence Frequency Rates for the second year of study compared to those for the first year are significantly greater at a 40% criterion level.

The change in the mean values for all three absence rates is highly significant ($p < 0.001$), using paired-sample analysis.

Absenteeism as described by Sickness Absence Rate, Sickness Absence Frequency Rate and One Day Sickness Absence Frequency Rate was significantly higher in the second year of study when sick payment from the first day of sickness absence was introduced, compared to the previous year when sick payment was only received from the third day of absence. The results for the Sign Test conducted on the three absence rates were significant at least the 0.05 level of significance and are confirmatory to the paired-sample analysis results.

Student's t Test for paired-sample observations and Sign Test were repeated on the three absence rates for the "comparison of trend" sample population. This smaller group of employees would provide some form of comparison since their sick pay benefits remained unchanged over the two years studied.

Sickness Absence Rate for "Comparison of Trend" Sample Population

The mean, median and mode values for the Sickness Absence Rate are fairly similar, (2.3, 2.4 and 2.0 respectively for the first year; 2.8, 2.6 and 2.3 respectively for the second year) with low values for skewness (-0.5 and 0.5 for the first and second years) and kurtosis (2.4 and -0.8 for the first and second years) suggesting normal distribution. The percentage increase in mean monthly SAR for the second year was only 20.4% greater than the rate for the first year of study. The mean value for Sickness Absence Rate increased from 2.3% to 2.8%. The median and mode values also showed small increases.

Table 25: SICKNESS ABSENCE RATE (%) FOR "COMPARISON OF TREND" SAMPLE POPULATION

	1987-1988	1988-1989
Sep	1.9	1.5
Oct	1.8	4.0
Nov	3.0	3.8
Dec	4.2	2.5
Jan	2.0	2.2
Feb	2.3	3.3
Mar	1.9	2.3
Apr	2.5	1.9
May	0.0	2.1
Jun	2.6	4.4
Jul	2.4	3.0
Aug	3.4	2.6

Table 26: STATISTICS SUMMARY OF SICKNESS ABSENCE RATE AND LOG SICKNESS ABSENCE RATE FOR COMPARISON OF TREND SAMPLE POPULATION

	First Year		Second Year	
Statistics Summary	SAR	LogSAR	SAR	LogSAR
Sample size	12.0	12.0	12.0	12.0
Mean	2.3	0.2	2.8	1.0
Median	2.4	0.9	2.6	1.0
Mode	2.0	0.7	2.3	0.8
Standard deviation	1.0	2.3	0.9	0.3
Skewness	-0.5	-3.4	0.5	-0.03
Kurtosis	2.4	11.6	-0.8	-0.7

Logarithmic transformation of sickness absence values, to alleviate skewness and kurtosis, was done owing to the different sample population of employees. It showed that the mean value (0.2) was dissimilar to the median and mode values (0.9 and 0.7 respectively), while the values for skewness and kurtosis were -3.4 and 11.6. The second year had a tighter grouping of mean, median and mode values (1.0, 1.0 and 0.8 respectively). Paired-sample analysis was conducted on these logarithmic Sickness Absence Rate values to assess the affect of the transformation on them.

Student t Test (Student, 1908) for paired-sample observations was used as before to determine whether a significant difference existed of the mean for the first year of observations compared to the mean for the second year of observations.

Table 27: PAIRED-SAMPLE ANALYSIS OF SAR FOR "COMPARISON OF TREND" SAMPLE POPULATION

Null Hypothesis:	There is no significant difference in the mean value of Sickness Absence Rates for the second year of study compared to the first year of study.
Sample Statistics:	SAR (1st 12 months) - SAR (2nd 12 months) Number of observations 12.000 Mean difference -0.475 Median -0.498 Standard deviation 1.188
Confidence Interval	for the difference in means: 95 percent -1.230 0.280 at 11 degrees of freedom
Significance Test:	Level of significance = 0.050 Computed t statistic = -1.384 Significance level, p = 0.194
Results:	Computed t value not significant so do not reject Null Hypothesis.

The paired-sample analysis result for Sickness Absence Rate for the "comparison of trend" sample population does not give a significant p value ($p > 0.05$). The Null Hypothesis is accepted, meaning there is no significant difference in means of Sickness Absence Rate between the first and second year of study. Thus, sickness absence behaviour, for this group of employees, remained unchanged for the period under study.

The test was repeated using the logarithmic values of the Sickness Absence Rates.

Table 28: PAIRED-SAMPLE ANALYSIS OF LOG SAR FOR "COMPARISON OF TREND" SAMPLE POPULATION

Null Hypothesis:	There is no significant difference in the mean value of Logarithmic Sickness Absence Rates for the second year of study compared to the first year of study.
	LOG SAR (1st 12 months) - LOG SAR (2nd 12 months)
Sample Statistics:	Number of observations 12.000
	Mean difference -0.737
	Median -0.210
	Standard deviation 2.206
Confidence Interval	for the difference in means: 95 percent
	-2.139 0.665 at 11 degrees of freedom
Significance Test:	Level of significance = 0.050
	Computed t statistic = -1.158
	Significance level, p = 0.271
Results:	Computed t value not significant so accept Null Hypothesis.

The results for the paired-sample analysis of logarithmic values of SAR also show an insignificant t value ($p > 0.05$) so confirming the Null Hypothesis. Therefore, the means of the logarithmic values for the sickness absence rates for the first and second years of study were not significantly different. It can be concluded, that the sickness absence behaviour was unchanged over the two years. Replicating the analysis using logarithmic values for Sickness Absence Rate did not improve the significance of the results, but gave a lower level of significance. This exercise was not repeated.

The non-parametric Sign Test for small sample sizes and non-normal distribution was performed to confirm the results. A 10% criterion change was chosen in preference to the 40% criterion as being more sensitive for detecting changes.

Table 29: SIGN TEST FOR COMPARISON OF TWO SETS OF OBSERVATIONS OF SAR IN "COMPARISON OF TREND" SAMPLE POPULATION

Definition: Award a positive sign if the difference in Sickness Absence Rates is greater than 10% between the first and second years of study.

Null Hypothesis: There is no change in SAR at a 10% criterion level between the first and second years of study.

Month	SAR 1987/88	10% Increase	SAR 1988/89	Signs
Sep	1.89	2.08	1.52	-
Oct	1.78	1.96	3.97	+
Nov	2.95	3.25	3.76	+
Dec	4.21	4.63	2.53	-
Jan	2.05	2.26	2.24	-
Feb	2.30	2.53	3.30	+
Mar	1.87	2.06	2.32	+
Apr	2.52	2.77	1.94	-
May	0.00	0.00	2.09	+
Jun	2.63	2.89	4.38	+
Jul	2.41	2.65	2.96	+
Aug	3.35	3.69	2.64	-

Number of positive differences: 7
Number of negative differences: 5
n = 12 pairs

Results: Sickness Absence Rates for the second year of study were not significantly different from the rates for the first year, at the 0.05 level of significance, using the Sign Test table (Pipkin, 1984, p. 125).
Therefore, accept Null Hypothesis.

The Sign Test confirms the results for the paired-sample analysis. The Sickness Absence Rates for the second year of study were not significantly different to those for the first year of study, meaning sickness absence behaviour remained unchanged over the two years.

Sickness Absence Frequency Rate for "Comparison of Trend" Sample Population

The mean, median and mode values for the Sickness Absence Frequency Rate are again very similar (0.22, 0.21 and 0.21 respectively for the first year; and 0.29 for all three values for the second year), with low values for skewness (-0.68 and 0.008 for the first and second years) and kurtosis (1.26 and 0.75 for the first and second years). The percentage increase in mean monthly SAFR for the second year was 32.4% greater than the rate for the first year of study. The mean value for Sickness Absence Frequency Rate increased from 0.22% to 0.29%. The median and mode values also showed small increases.

Table 30: SICKNESS ABSENCE FREQUENCY RATE FOR "COMPARISON OF TREND" SAMPLE POPULATION

	1987-1988	1988-1989
Sep	0.21	0.29
Oct	0.14	0.43
Nov	0.36	0.29
Dec	0.29	0.07
Jan	0.21	0.21
Feb	0.29	0.29
Mar	0.21	0.21
Apr	0.21	0.29
May	0.00	0.21
Jun	0.14	0.50
Jul	0.21	0.36
Aug	0.36	0.36

Table 31: STATISTICS SUMMARY OF SICKNESS ABSENCE FREQUENCY RATE FOR "COMPARISON OF TREND" SAMPLE POPULATION

Statistics Summary	First Year SAFR	Second Year SAFR
Sample size	12.00	12.00
Mean	0.22	0.29
Median	0.21	0.29
Mode	0.21	0.29
Standard deviation	0.10	0.11
Skewness	-0.68	0.008
Kurtosis	1.26	0.75

Paired-sample analysis was then used to determine whether any significant difference in the means between the first and second years of observations existed.

Table 32: PAIRED-SAMPLE ANALYSIS OF SAFR FOR "COMPARISON OF TREND" SAMPLE POPULATION

Null Hypothesis:	There is no significant difference in the mean value of Sickness Absence Frequency Rates for the second year of study compared to the first year of study.
Sample Statistics:	SAFR (1st 12 months) - SAFR (2nd 12 months) Number of observations 12.000 Mean difference -0.071 Median -0.036 Standard deviation 0.158
Confidence Interval	for the difference in means: 95 percent -0.172 0.029 at 11 degrees of freedom
Significance Test:	Level of significance = 0.050 Computed t statistic = -1.563 Significance level, p = 0.146
Results:	Computed t value not significant so accept Null Hypothesis.

The paired-sample analysis result for the "comparison of trend" sample population, regarding Sickness Absence Frequency Rate, does not give a significant p value ($p > 0.05$). The Null Hypothesis is accepted, indicating that there is no significant difference in the means of Sickness Absence Frequency Rates between the first and second years of study. This means that absence behaviour, when measured by Sickness Absence Frequency Rates, remained unchanged over the two year study period.

The results for the Sign Test, using the more sensitive 10% criterion change, are given.

Table 33: SIGN TEST FOR COMPARISON OF TWO SETS OF OBSERVATIONS OF SAFR IN "COMPARISON OF TREND" SAMPLE POPULATION

Definition: Award a positive sign if the difference in Sickness Absence Frequency Rates is greater than 10% between the first and second years of study.

Null Hypothesis: There is no change in SAFR at a 10% criterion level between the first and second years of study.

Month	SAFR 1987/88	10% Increase	SAFR 1988/89	Signs
Sep	0.21	0.23	0.29	+
Oct	0.14	0.15	0.43	+
Nov	0.36	0.40	0.29	-
Dec	0.29	0.32	0.07	-
Jan	0.21	0.23	0.21	-
Feb	0.29	0.32	0.29	-
Mar	0.21	0.23	0.21	-
Apr	0.21	0.23	0.29	+
May	0.00	0.00	0.21	+
Jun	0.14	0.15	0.50	+
Jul	0.21	0.23	0.36	+
Aug	0.36	0.40	0.36	-

Number of positive differences: 6
Number of negative differences: 6
n = 12 pairs

Results: Sickness Absence Frequency Rates for the second year of study are not significantly different from the rates for the first year, at the 0.05 level of significance, using the Sign Test table (Pipkin, 1984, p. 125). Therefore, accept Null Hypothesis.

The Sign Test confirms the results for the paired-sample analysis. The Sickness Absence Frequency Rates for the second year of study were not significantly different to those for the first year of study.

One Day Sickness Absence Frequency Rate for Comparison of Trend Sample Population

The mean, median and mode values for the One Day Sickness Absence Frequency Rate are again very similar, (0.08, 0.07 and 0.07 respectively for the first year; 0.15, 0.14 and 0.14 respectively for the second year) with low values for skewness (1.51 and -0.19 for the first and second years) and kurtosis (3.2 and 0.2 for the first and second years respectively). The percentage increase in mean monthly ODSAFR for the second year was 78.6% greater than the rate for the first year of study. This was the greatest increase among the three rates. The mean value for One Day Sickness Absence Frequency Rate increased from 0.08 to 0.15. The median and mode values also showed similar increases.

Table 34: ONE DAY SICKNESS ABSENCE FREQUENCY RATE FOR "COMPARISON OF TREND" SAMPLE POPULATION

	1987-1988	1988-1989
Sep	0.07	0.21
Oct	0.07	0.21
Nov	0.29	0.07
Dec	0.00	0.00
Jan	0.07	0.14
Feb	0.14	0.14
Mar	0.07	0.07
Apr	0.07	0.14
May	0.00	0.14
Jun	0.00	0.29
Jul	0.07	0.14
Aug	0.14	0.21

Table 35: STATISTICS SUMMARY OF ODSAFR FOR "COMPARISON OF TREND" SAMPLE POPULATION

Statistics Summary	First Year ODSAFR	Second Year ODSAFR
Sample size	12.00	12.00
Mean	0.08	0.15
Median	0.07	0.14
Mode	0.07	0.14
Standard deviation	0.08	0.08
Skewness	1.51	-0.19
Kurtosis	3.21	0.22

Student's t Test for paired-sample observations is given.

Table 36: PAIRED-SAMPLE ANALYSIS OF ODSAFR FOR "COMPARISON OF TREND" SAMPLE POPULATION

Null Hypothesis: There is no significant difference in the mean value of One Day Sickness Absence Frequency Rates for the second year of study compared to the first year of study.

ODSAFR (1st 12 months) - ODSAFR (2nd 12 months)

Sample Statistics:

Number of observations	12.000
Mean difference	-0.065
Median	-0.071
Standard deviation	0.120

Confidence Interval for the difference in means: 95 percent
-0.142 0.011 at 11 degrees of freedom

Significance Test:

Level of significance =	0.050
Computed t statistic =	-1.894
Significance level, p =	0.085

Results: Computed t value not significant so accept Null Hypothesis.

The paired-sample analysis result does not give a significant p value ($p > 0.05$). The Null Hypothesis is accepted. This means that there is no significant difference in means of the One Day Sickness Absence Frequency Rates, for the "comparison of trend" sample population, between the first and second years of study.

The non-parametric Sign Test, at a 10% criterion change, was performed to confirm the results.

Table 37: SIGN TEST FOR COMPARISON OF TWO SETS OF OBSERVATIONS OF ODSAFR IN "COMPARISON OF TREND" SAMPLE POPULATION

Definition: Award a positive sign if the difference in One Day Sickness Absence Frequency Rates is greater than 10% between the first and second years of study.

Null Hypothesis: There is no change in ODSAFR at a 10% criterion level between the first and second years of study.

Month	ODSAFR 87/88	10% Increase	ODSAFR 88/89	Signs
Sep	0.07	0.08	0.21	+
Oct	0.07	0.08	0.21	+
Nov	0.29	0.32	0.07	-
Dec	0.00	0.00	0.00	0
Jan	0.07	0.08	0.14	+
Feb	0.14	0.15	0.14	-
Mar	0.07	0.08	0.07	-
Apr	0.07	0.08	0.14	+
May	0.00	0.00	0.14	+
Jun	0.00	0.00	0.29	+
Jul	0.07	0.08	0.14	+
Aug	0.14	0.15	0.21	+

Number of positive differences: 8
Number of negative differences: 3
Number of tied pairs : 1
n = 11 pairs

Results: One Day Sickness Absence Frequency Rates for the second year of study are not significantly different from the rates for the first year, at the 0.05 level of significance, using the Sign Test table (Pipkin, 1984, p. 125). Therefore, accept Null Hypothesis.

The Sign Test confirms the results for the paired-sample analysis. The One Day Sickness Absence Frequency Rates for the second year of study were not significantly different from the

first year absence rates for the "comparison of trend" sample population.

All three comparisons of rates for the "comparison of trend" sample population show the same result - the level of significance for the t values is $p > 0.05$, and thus, there is not a significant difference in the absence rates between the first and second years of the study. This suggests that absence behaviour for this particular group of employees remained unchanged over the two years.

The three absence rates analysed for the two different populations are shown graphically to give a visual impression of the contrasting absence behaviours between the sample population group and the "comparison of trend" sample population group. The data were smoothed to minimize the effect of absence data irregularity. The three monthly moving averages were calculated using Statgraphics: Statistical Graphics System By Statistical Graphics Corporation, Version 4.0 (1989).

See page 5.34, for Figure 6, showing the 3 monthly moving average of Sickness Absence Rate for the sample population over the twenty-four month study period, and the same can be found for the "comparison of trend" sample population on page 5.35 (Figure 7). The graph for the sample population shows doubling in SAR (100.6% increase in mean rates) from the first year to the second, with a marked hike in rates already taking place in September 1988, when the change in legislation ensured sick payment from the first day of sickness absence.

FIGURE 6: 3 MONTHLY MOVING AVERAGE OF SICKNESS ABSENCE RATE FOR SAMPLE POPULATION

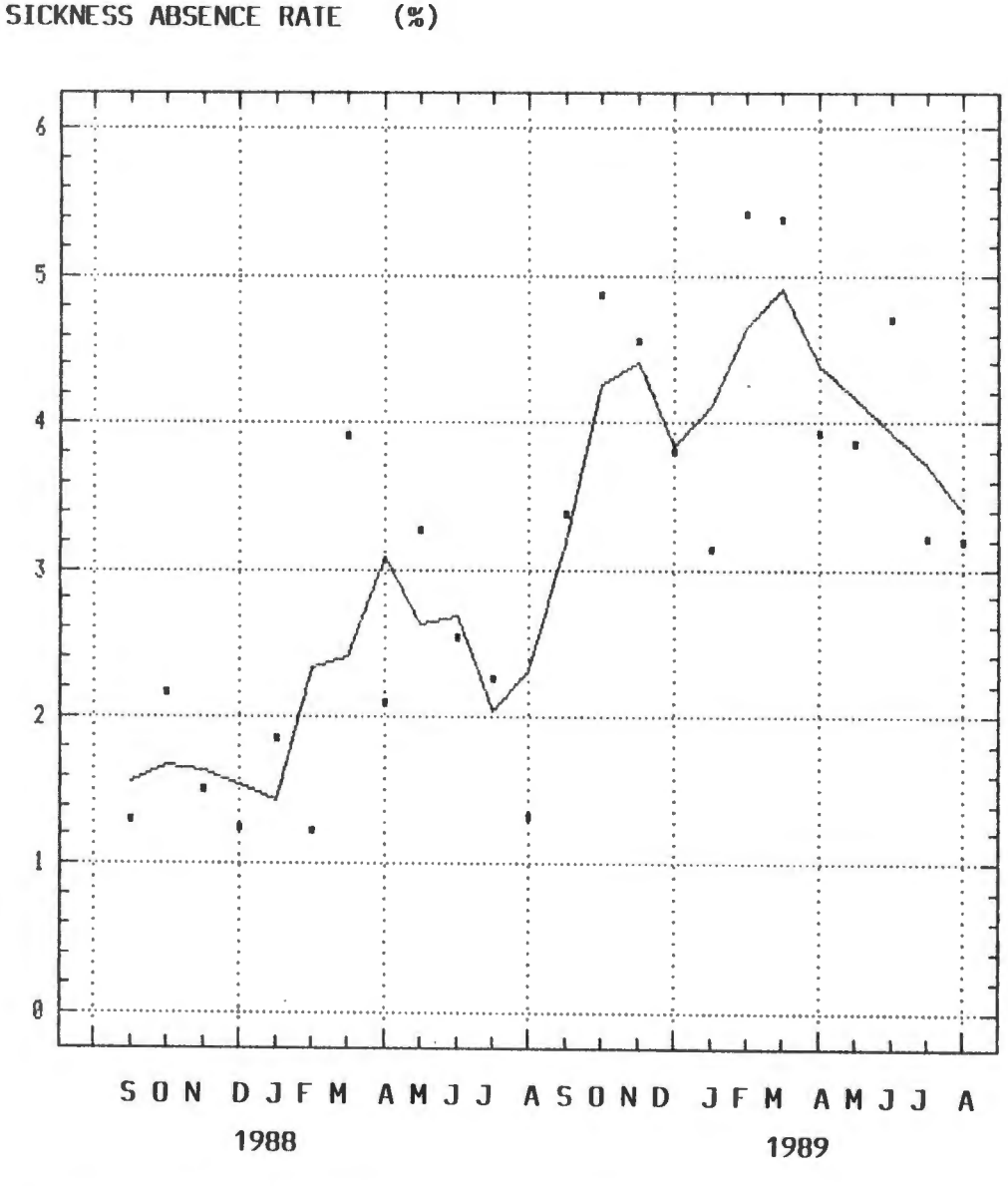
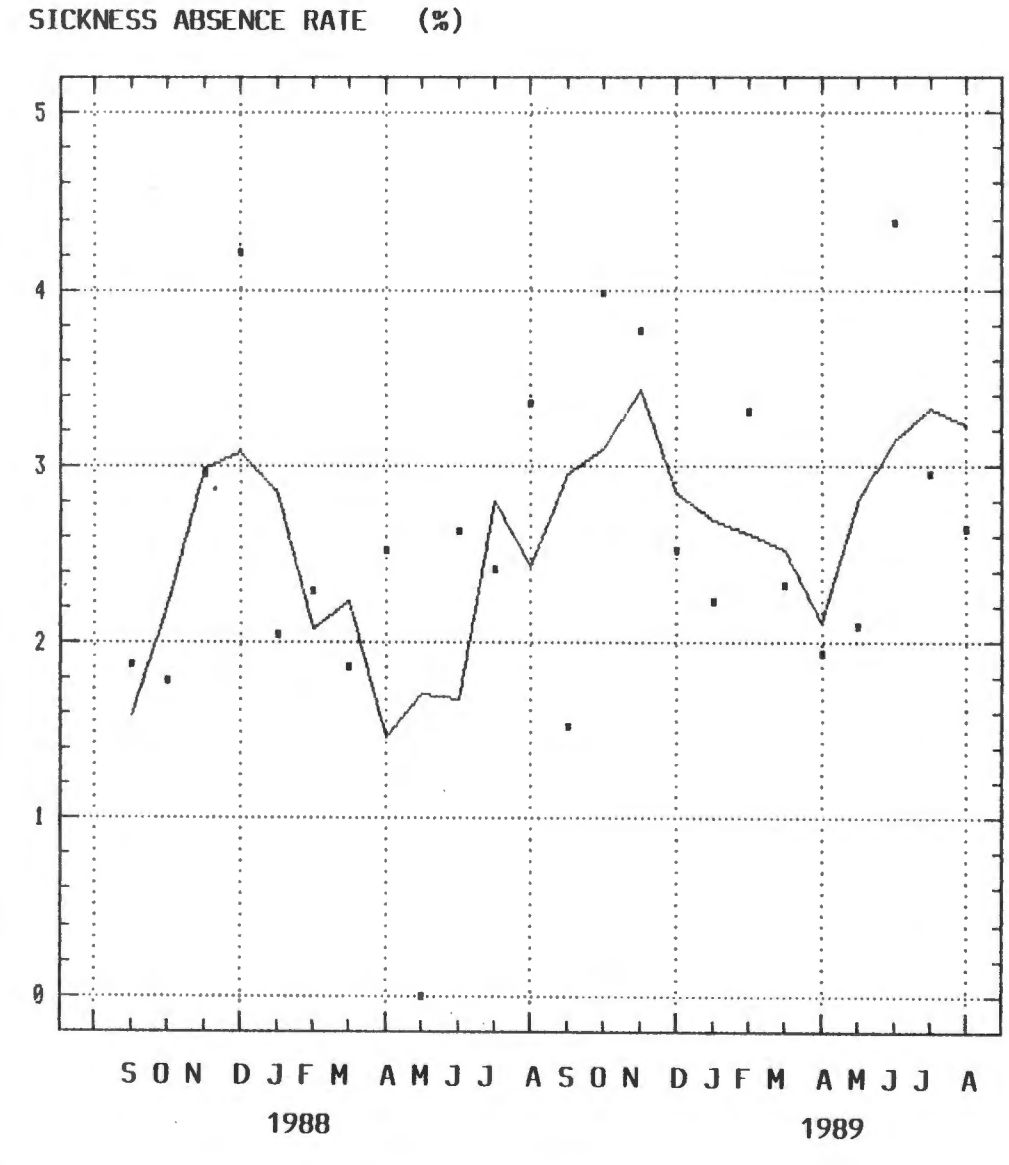


FIGURE 7: 3 MONTHLY MOVING AVERAGE OF SICKNESS ABSENCE RATE FOR "COMPARISON OF TREND" SAMPLE POPULATION



The "comparison of trend" sample population does not show the same pattern in absence behaviour, the graph displays only a gradual increase in Sickness Absence Rates over the two year period. The mean increase in Sickness Absence Rates was 20.4% over the two years.

Figure 8, found on page 5.37, shows the 3 monthly moving average of Sickness Absence Frequency Rate for the sample population. Again, SAFR for the sample population is markedly different in the second year, with September 1988 showing a very large increase in SAFR. The graph line clearly shows the 138.3% increase in mean rates. The graph for the "comparison of trend" sample population, found on page 5.38 (Figure 9), is somewhat erratic, with noticeable dips in rates over May/June 1988 and December/January 1988/89. There is a mean increase in rates of 32.4%, but no jump in rates between August and September 1988.

The 3 monthly moving average of One Day Sickness Absence Frequency Rate for the sample population is shown on page 5.39 (Figure 10). As before, there is a clear difference in frequency absence behaviour between the two study years for the sample population. The 128.8% increase in mean rates is obvious by the hike in frequency rates from September 1988. There does appear to be a downward trend for the last two months of the second study year, suggesting some settling in behaviour. The graph showing the 3 monthly moving average of ODSAFR for the "comparison of trend" sample population, found on page 5.40, illustrates the greatest increase in mean rates, that is 78.6%.

FIGURE 8: 3 MONTHLY MOVING AVERAGE OF SICKNESS ABSENCE FREQUENCY RATE FOR SAMPLE POPULATION

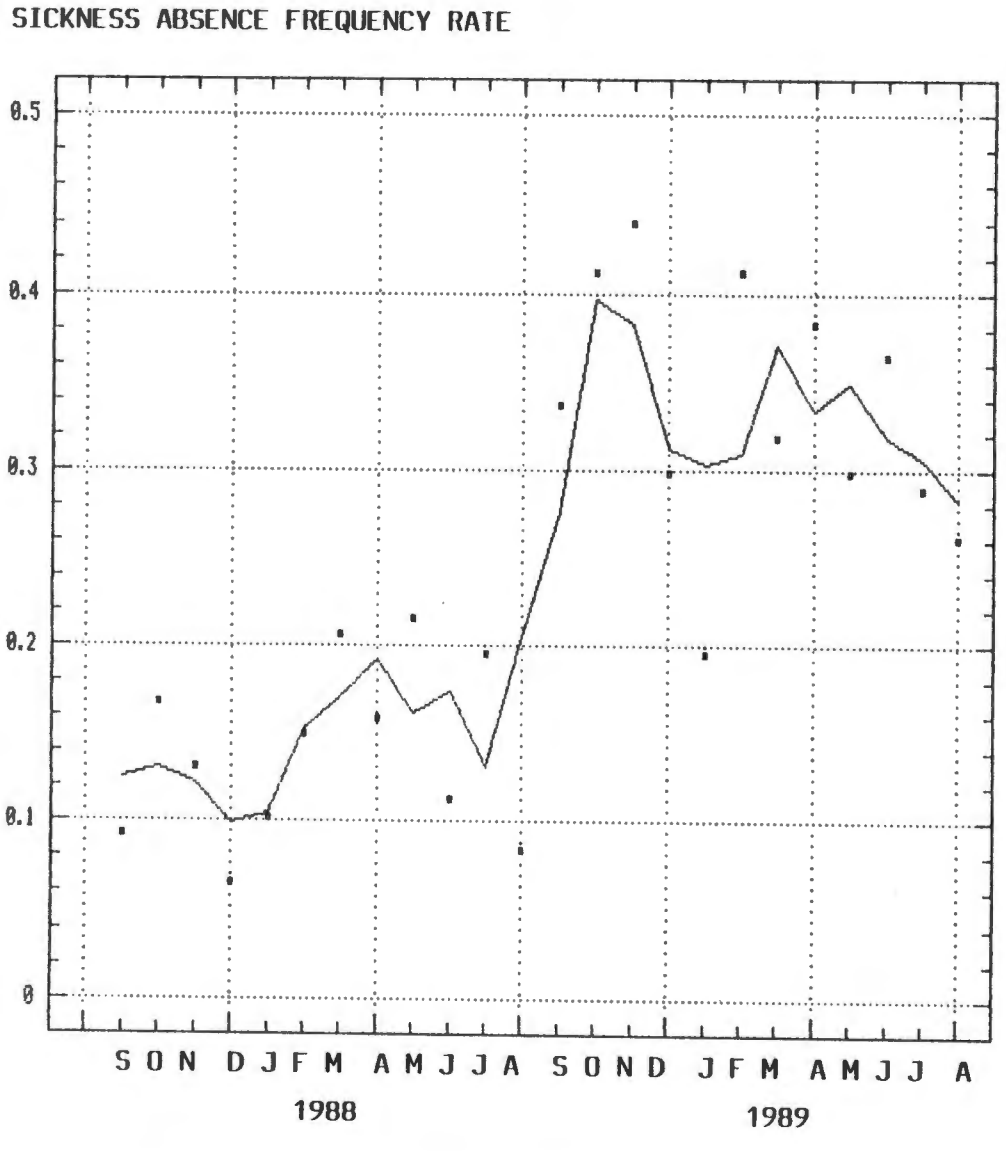


FIGURE 9: 3 MONTHLY MOVING AVERAGE OF SICKNESS ABSENCE FREQUENCY RATE FOR "COMPARISON OF TREND" SAMPLE POPULATION

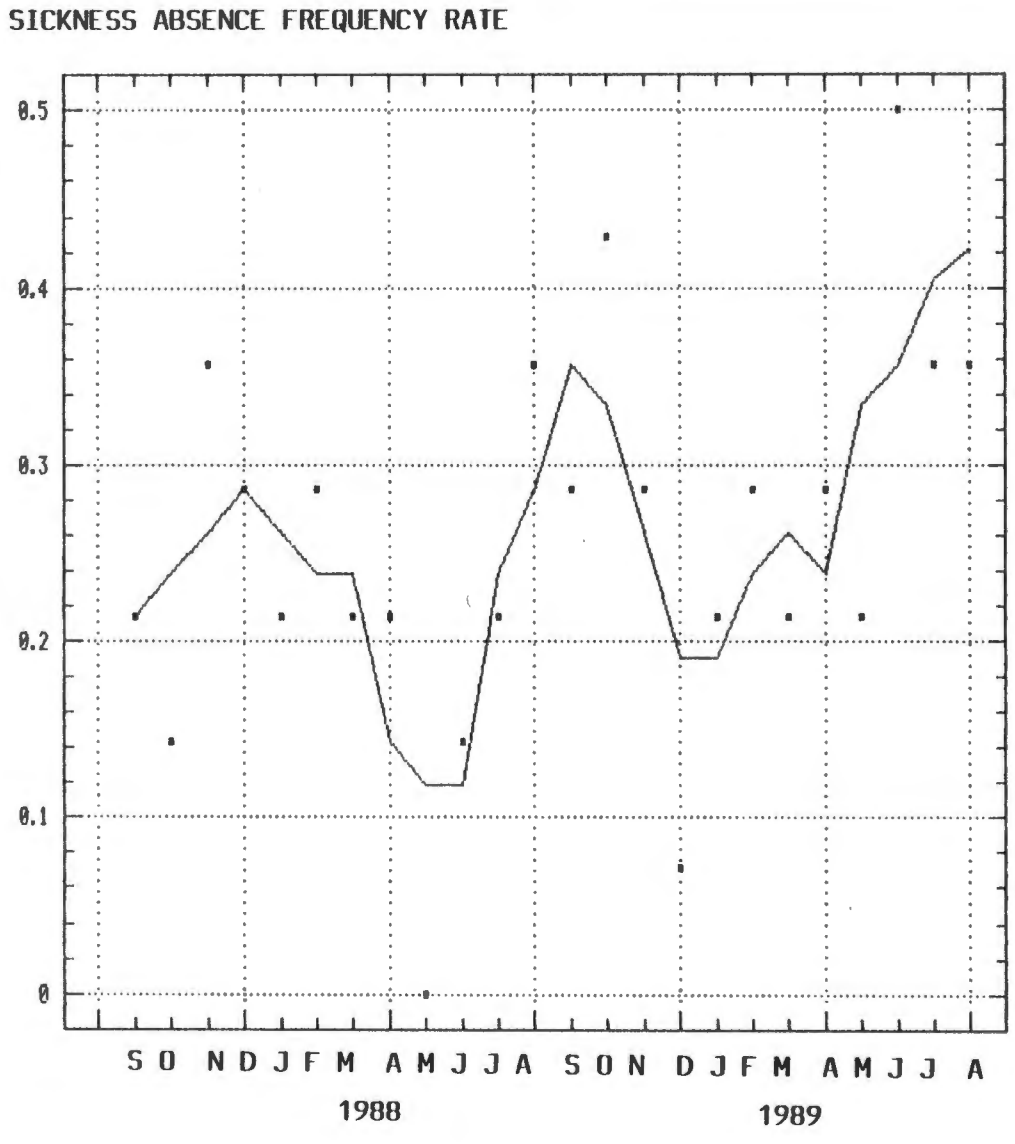


FIGURE 10: 3 MONTHLY MOVING AVERAGE OF ONE DAY SICKNESS ABSENCE FREQUENCY RATE FOR SAMPLE POPULATION

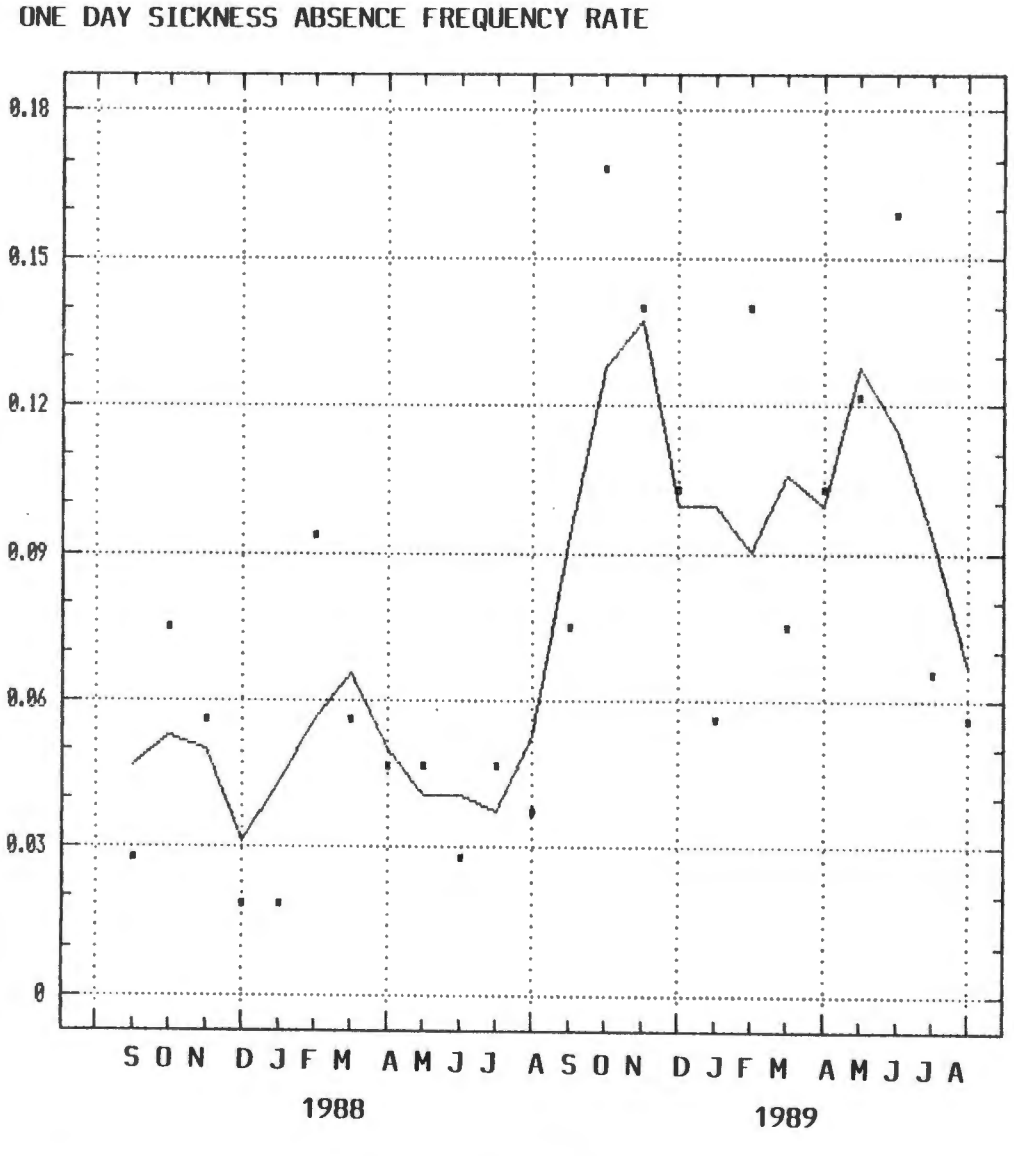
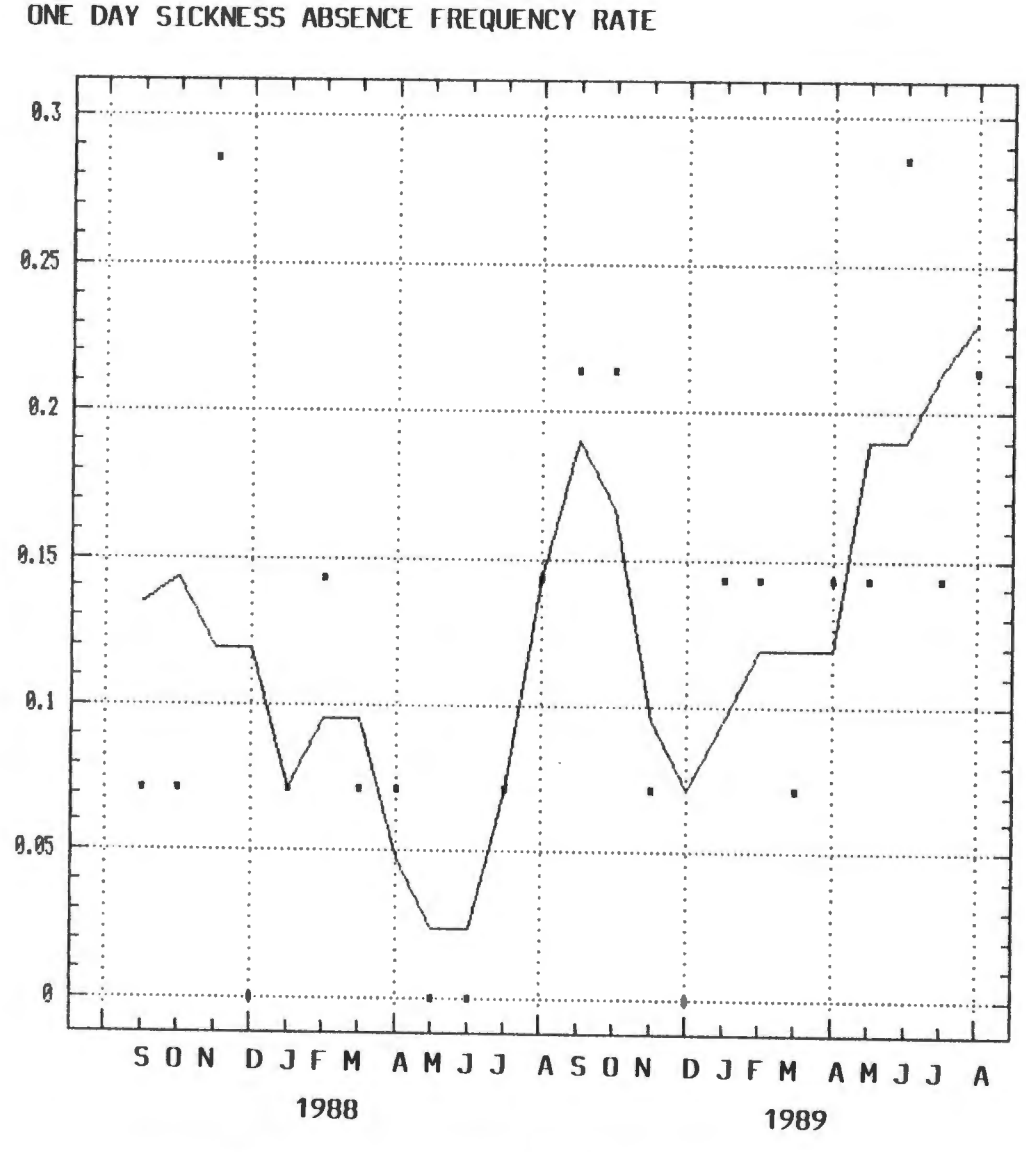


FIGURE 11: 3 MONTHLY MOVING AVERAGE OF ONE DAY SICKNESS ABSENCE FREQUENCY RATE FOR "COMPARISON OF TREND" SAMPLE POPULATION



The two years show similar absence patterns. Both years start with high One Day Absence Frequency Rates, which decrease before climbing to higher year end rates. There is, however, no marked contrast in absence behaviour for the two years.

The three absence rates for the sample population all show settling near the end of the second year, though the rates are considerably higher than their counterpart months the year before.

5.3 Hypothesis 2

As for Hypothesis 1, Hypothesis 2 and it's objective will be repeated.

Hypothesis 2: Gabriel SA (Pty) Ltd introduced a penalty system that influenced each employee's annual bonus, where once an employee's rate of absenteeism exceeded 3% for the bonus year (taken from 3.10.1988 through to 1.10.1989) that employee's bonus would be reduced by the full percentage for which he or she was absent. Thus, the second hypothesis states that the introduction of this penalty system, based on individual absence behaviour, will significantly reduce the number of absence days in the company.

Objective 2: To determine the pattern of absence behaviour by Gabriel's hourly paid population following the implementation of a penalty system that influences each employee's annual bonus, based on each employee's absence record for the financial year

from 3.10.1988 to 1.10.1989, compared to the previous twelve months, when no penalty system existed. The measurement Gross Absence Rate, aggregated per financial year, will be used for each employee.

The negative incentive bonus scheme sample population for this part of the study consisted of 331 permanent, hourly paid employees who were continuously employed for the two year study period from 28.09.1987 to 1.10.1989. The rating for being either industrial council or non-industrial council was not relevant for the second hypothesis.

The mean and median age of this group of employees, taken at the commencement of the study, was 29.8 years and 28.0 years respectively. A large proportion of the employees (28.1%) were aged between twenty-one and twenty-five years. The next most frequent age group was twenty-six to thirty years with 24.8% of the employees. Mean service duration was 5.6 years (median = 5.0 years), with a wide range in service duration from one year to twenty-six years. Over half (55.9%) of the sample group had been employed for less than five years.

The majority of employees for this population group were male (268; 81.0%) and only sixty-three were female (19.0%). Most of the employees from the group were coloured (316; 95.5%), six (1.8%) were black employees and nine were white (2.7%).

Table 38: AGE AND SERVICE DURATION OF NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION

Statistics Summary	Age(yrs)	Service Duration(yrs)
Sample size	331.0	331.0
Mean	29.8	5.6
Median	28.0	5.0
Standard deviation	8.9	4.9
Minimum	17.0	1.0
Maximum	61.0	26.0

Table 39: FREQUENCY TABULATION OF AGE (YEARS) FOR NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION

Class	Lower Limit	Upper Limit	Frequency	Relative Percentage
at or below		20.0	34.0	10.3
1	21.0	25.0	93.0	28.1
2	26.0	30.0	82.0	24.8
3	31.0	35.0	50.0	15.1
4	36.0	40.0	32.0	9.7
5	41.0	45.0	17.0	5.1
6	46.0	50.0	9.0	2.7
above	50.0		14.0	4.2

Table 40: FREQUENCY TABULATION OF SERVICE DURATION (YEARS) FOR NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POP.

Class	Lower Limit	Upper Limit	Frequency	Relative Percentage
below		1.0	0.0	0.0
1	1.0	5.0	185.0	55.9
2	6.0	10.0	89.0	26.9
3	11.0	15.0	38.0	11.5
4	16.0	20.0	16.0	4.8
5	21.0	25.0	2.0	0.6
6	26.0	30.0	1.0	0.3
above	30.0		0.0	0.0

The aggregated Gross Absence Rate had a mean value of 4.9% for the first year, when GAR was taken as one of the qualifying criteria for the General Incentive Bonus Scheme which determined the company's annual bonus. There was a 5.4% increase in the

mean rate which gave a GAR value of 5.1% for the second year. For each year the mean and median values were reasonably similar, but the mode values were very different. In addition, there was pronounced positive skewness and truncation in the aggregated Gross Absence Rates for the second year (3.2 and 17.5 respectively). The first year's values (skewness = 1.6 and truncation = 3.4) were within acceptable limits for normal distribution (Kendall and Stuart, 1958). Unfortunately, it was not possible to transform the rates owing to the presence of zero values. This might have improved the levels of significance in the analysis.

Table 41: STATISTICS SUMMARY OF AGGREGATED GAR FOR NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION

Statistics Summary	First Year GAR(%)	Second Year GAR(%)
Sample size	331.0	331.0
Mean	4.9	5.1
Median	4.1	4.5
Mode	0.0	0.0
Standard deviation	3.8	4.2
Skewness	1.6	3.2
Kurtosis	3.4	17.5

The mean Gross Absence Rate for the second year was found not to be significantly different from the mean value for the first year. Paired-sample analysis testing for significance of the computed t value was used (Statgraphics: Statistical Graphics System By Statistical Graphics Corporation, Version 4.0, 1989).

Table 42: PAIRED-SAMPLE ANALYSIS OF AGGREGATED GAR (%) FOR NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POP.

Null Hypothesis: There is no significant difference in the mean value of aggregated Gross Absence Rates

for the second year of study compared to the first year of study.

	GAR (1st 12 months) - GAR (2nd 12 months)	
Sample Statistics:	Number of observations	331.000
	Mean difference	-0.263
	Median	-0.190
	Standard deviation	4.343

Confidence Interval for the difference in means:
95 percent
-0.733 0.207 at 330 degrees of freedom

Significance Test:	Level of significance =	0.050
	Computed t statistic =	-1.101
	Significance level, p =	0.271

Results: Computed t value not significant so accept Null Hypothesis.

The computed t value (t = -1.101) at the 0.05 level of significance, was not significant (p = 0.271). Thus, there was no significant increase in the mean aggregated value for Gross Absence Rates over the two year study period, when a negative incentive bonus scheme became operative for the second period of twelve months.

This result can be further illustrated by frequency tabulation of the Gross Absence Rates. The number of people with a GAR of 3.0% or less, would be expected to be greater for the second year. One hundred and twenty employees had an aggregated GAR of 3.0% or less from 28.09.1987 to 2.10.1988, the first year. There was, however, a decrease in the number of employees to 102 who had maintained a GAR of 3.0% or less for the second twelve months (3.10.1988 to 1.10.1989). For the first year the largest group of employees (50 employees or 15.1%) had a GAR of between 2.1% and 3.0%, and for the second year the largest group (also

50 employees or 15.1%) had a higher rate of between 4.1% and 5.0%. The mean value for the Gross Absence Rates increased from 4.9% to 5.1% , with the median shifting from 4.1% to 4.5%.

Table 43: FREQUENCY TABULATION OF AGGREGATED GAR (%) FOR THE NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION 1987-1988

Class	Lower Limit	Upper Limit	Freq.	Relative Percen.	Cumulative Frequency	Cum. Rel. Percent.
at or below		0.0	7.0	2.1	7.0	2.1
1	0.1	1.0	27.0	8.2	34.0	10.3
2	1.1	2.0	36.0	10.9	70.0	21.2
3	2.1	3.0	50.0	15.1	120.0	36.3
4	3.1	4.0	40.0	12.1	160.0	48.3
5	4.1	5.0	43.0	13.0	203.0	61.3
6	5.1	6.0	33.0	10.0	236.0	71.3
7	6.1	7.0	26.0	7.9	262.0	79.2
8	7.1	8.0	19.0	5.7	281.0	84.9
9	8.1	9.0	17.0	5.1	298.0	90.0
10	9.1	10.0	6.0	1.8	304.0	91.8
11	10.1	11.0	5.0	1.5	309.0	93.4
12	11.1	12.0	7.0	2.1	316.0	95.5
above	12.0		15.0	4.5	331.0	100.0

Mean = 4.9 Standard deviation = 3.8 Median = 4.1

Table 44: FREQUENCY TABULATION OF AGGREGATED GAR (%) FOR THE NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION 1988-1989

Class	Lower Limit	Upper Limit	Freq.	Relative Percen.	Cumulative Frequency	Cum. Rel. Percent.
at or below		0.0	8.0	2.4	8.0	2.4
1	0.1	1.0	19.0	5.7	27.0	8.2
2	1.1	2.0	30.0	9.1	57.0	17.2
3	2.1	3.0	45.0	13.6	102.0	30.8
4	3.1	4.0	45.0	13.6	147.0	44.4
5	4.1	5.0	50.0	15.1	197.0	59.5
6	5.1	6.0	33.0	10.0	230.0	69.5
7	6.1	7.0	34.0	10.3	264.0	79.8
8	7.1	8.0	20.0	6.0	284.0	85.8
9	8.1	9.0	12.0	3.6	296.0	89.4
10	9.1	10.0	8.0	2.4	304.0	91.8
11	10.1	11.0	9.0	2.7	313.0	94.6
12	11.1	12.0	3.0	0.9	316.0	95.5
above	12.0		15.0	4.5	331.0	100.0

Mean = 5.1 Standard deviation = 4.2 Median = 4.5

Owing to the apparent influence of the amendment to the Main Agreement for the Motor Industry (1988) (see Appendix A), mentioned earlier, on absence behaviour, employees with less than five years service had to be excluded. Payment of sick leave from the first day of sickness absence, as opposed from the third day, would be expected to be a determining factor influencing absence behaviour. There was no change in sick pay benefits for employees with over five years service duration, and any possible influence of the negative incentive bonus scheme would be more likely in this group of employees.

The negative incentive bonus scheme sample population now consisted of one hundred and eighty-five employees with over five years service duration. The mean age for this group was 32.7 years (median = 30.0 years), with fifty-nine employees (31.9%) aged between twenty-six and thirty years. No employees were aged under twenty years and the maximum age was sixty-one years. There was a mean service duration of nine years (median = 7.0 years) and a maximum service duration of twenty-six years. The largest section of this group (48.1%) achieved a service duration of between five and ten years. One hundred and thirty-nine (75.1%) employees were male and forty-six (24.9%) were female. By far the largest proportion (183.0; 98.9%) were coloured people and a small minority white (2.0; 1.1%).

Table 45: AGE AND SERVICE DURATION OF NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION WITH OVER 5 YEARS SERVICE

Statistics Summary	Age(yrs)	Service Duration(yrs)
Sample size	185.0	185.0
Mean	32.7	9.0
Median	30.0	7.0
Standard deviation	8.5	4.2
Minimum	21.0	5.0
Maximum	61.0	26.0

Table 46: FREQUENCY TABULATION OF AGE (YEARS) FOR NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION WITH OVER 5 YEARS SERVICE DURATION

Class	Lower Limit	Upper Limit	Frequency	Relative Percentage
at or below		20.0	0.0	0.0
1	21.0	25.0	34.0	18.4
2	26.0	30.0	59.0	31.9
3	31.0	35.0	38.0	20.5
4	36.0	40.0	22.0	11.9
5	41.0	45.0	14.0	7.6
6	46.0	50.0	7.0	3.8
above	50.0		11.0	6.0

Table 47: FREQUENCY TABULATION OF SERVICE DURATION (YEARS) FOR NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION WITH OVER 5 YEARS SERVICE DURATION

Class	Lower Limit	Upper Limit	Frequency	Relative Percentage
at		5.0	39.0	21.1
1	6.0	10.0	89.0	48.1
2	11.0	15.0	38.0	20.5
3	16.0	20.0	16.0	8.6
4	21.0	25.0	2.0	1.1
5	26.0	30.0	1.0	0.5
above	30.0		0.0	0.0

The aggregated mean value for Gross Absence Rate decreased from the first year to the second. The mean value for October 1987 to September 1988 was 5.0% decreasing to 4.6% for the second

twelve month period. There was a 7.4% decrease in rates. The median values also decreased from 4.2% to 4.0%. Skewness and kurtosis had acceptable values (1.6 and 4.5) for the first year, but were above recommended values for normal distribution for the second study year (skewness = 4.3 and kurtosis = 28.4). The mode values of zero did not allow for logarithmic transformation. The values for standard deviation were also fairly high.

Table 48: STATISTICS SUMMARY OF AGGREGATED GAR FOR NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION WITH OVER 5 YEARS SERVICE DURATION

Statistics Summary	First Year GAR(%)	Second Year GAR(%)
Sample size	185.0	185.0
Mean	5.0	4.6
Median	4.2	4.0
Mode	0.0	0.0
Standard deviation	3.6	4.3
Skewness	1.6	4.3
Kurtosis	4.5	28.4

Using paired-sample analysis the decrease in the aggregated mean Gross Absence Rate for the second year was found not to be significantly different from the mean value for the first year.

Table 49: PAIRED-SAMPLE ANALYSIS OF AGGREGATED GAR (%) FOR NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION WITH OVER 5 YEARS SERVICE DURATION

Null Hypothesis: There is no significant difference in the mean value of aggregated Gross Absence Rates for the second year of study compared to the first year of study.

Sample Statistics:	GAR (1st 12 months) - GAR (2nd 12 months)
Number of observations	185.000
Mean difference	0.365
Median	0.280
Standard deviation	4.072

Confidence Interval for the difference in means: 95 percent	-0.226 0.956 at 184 degrees of freedom
Significance Test:	Level of significance = 0.050 Computed t statistic = 1.220 Significance level, p = 0.224
Results:	Computed t value not significant so accept Null Hypothesis.

The computed t statistic (t = 1.220) was found not to be significant at the 0.05 level of significance (p > 0.05). Because there is no significant difference in the mean values of aggregated Gross Absence Rates between the two years the null hypothesis is accepted. No change in absence behaviour, using the measurement Gross Absence Rate, had taken place.

The frequency distribution for the aggregated mean Gross Absence Rate, however, saw an increase in the number of employees with a Gross Absence Rate of 3.0% or less in the second year. Fifty-nine employees had an aggregated Gross Absence Rate of 3.0% or less from 28.09.1987 to 2.10.1988, and this figure increased to sixty-nine employees for the second twelve months (3.10.1988 to 1.10.1989). For the first year the largest group of employees (twenty-five employees or 13.5%) had between 3.1% and 4.0% for their Gross Absence Rate, and for the second year the largest group (twenty-eight employees or 15.1%) had a lower rate of between 2.1% and 3.0%. It would appear that some employees with over five years service duration had attempted to improve absence behaviour and maintain a Gross Absence Rate of 3.0% or less.

Chi-Square analysis was used to determine whether the increase

in the number of employees with a Gross Absence Rate of 3% or less in the second year was significant or not.

Table 50: CHI-SQUARE ANALYSIS OF NUMBER OF EMPLOYEES WITH A GROSS ABSENCE RATE OF 3% OR LESS

Null Hypothesis: The number employees with a GAR of 3% or less before the negative incentive bonus scheme was introduced is equal to the number of employees with a GAR of 3% or less after it was introduced.

Two by Two Contingency Table:

GROSS ABSENCE RATE	NUMBER OF EMPLOYEES BEFORE SCHEME	AFTER SCHEME	TOTAL
3% or less	59.0	69.0	128.0
Greater than 3%	126.0	116.0	242.0
TOTAL	185.0	185.0	370.0

Level of significance: 0.05
Degrees of freedom : 1.00
Chi-Squared (X^2) : $\sum \frac{(O - E)^2}{E}$

Observed Frequency(O)	Expected Frequency(E)	$\frac{(O - E)^2}{E}$
59.0	64.0	0.39
69.0	64.0	0.39
126.0	121.0	0.21
116.0	121.0	0.21
		$X^2 = 1.20$

Chi-Square = 1.20
Significance level, $p > 0.05$, using the Distribution of X^2 Table (Swinscow, 1981, p.81).
So accept Null Hypothesis

Chi-Square analysis gave a level of significance of $p > 0.05$. The Null Hypothesis is accepted meaning that the increase in the number of employees, with more than five years service duration, with a GAR of 3% or less after the negative incentive bonus scheme was introduced was not significant.

Frequency tabulation of aggregated Gross Absence Rate for sample population with over five years service duration is given.

Table 51: FREQUENCY TABULATION OF AGGREGATED GAR (%) FOR THE NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION WITH OVER 5 YEARS SERVICE DURATION 1987-1988

Class	Lower Limit	Upper Limit	Freq.	Relative Percen.	Cumulative Frequency	Cum. Rel. Percent.
at or below		0.0	3.0	1.6	3.0	1.6
1	0.1	1.0	15.0	8.1	18.0	9.7
2	1.1	2.0	17.0	9.2	35.0	18.9
3	2.1	3.0	24.0	13.0	59.0	31.9
4	3.1	4.0	25.0	13.5	84.0	45.4
5	4.1	5.0	23.0	12.4	107.0	57.8
6	5.1	6.0	22.0	11.9	129.0	69.7
7	6.1	7.0	17.0	9.2	146.0	78.9
8	7.1	8.0	10.0	5.4	156.0	84.3
9	8.1	9.0	12.0	6.5	168.0	90.8
10	9.1	10.0	5.0	2.7	173.0	93.5
11	10.1	11.0	3.0	1.6	176.0	95.1
12	11.1	12.0	3.0	1.6	179.0	96.8
above	12.0		6.0	3.2	185.0	100.0

Mean = 5.0 Standard deviation = 3.6 Median = 4.2

Table 52: FREQUENCY TABULATION OF AGGREGATED GAR (%) FOR THE NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION WITH OVER 5 YEARS SERVICE DURATION 1988-1989

Class	Lower Limit	Upper Limit	Freq.	Relative Percen.	Cumulative Frequency	Cum. Rel. Percent.
at or below		0.0	7.0	3.8	7.0	3.8
1	0.1	1.0	14.0	7.6	21.0	11.4
2	1.1	2.0	20.0	10.8	41.0	22.2
3	2.1	3.0	28.0	15.1	69.0	37.3
4	3.1	4.0	25.0	13.5	94.0	50.8
5	4.1	5.0	23.0	12.4	117.0	63.2
6	5.1	6.0	22.0	11.9	139.0	75.1
7	6.1	7.0	18.0	9.7	157.0	84.9
8	7.1	8.0	8.0	4.3	165.0	89.2
9	8.1	9.0	10.0	5.4	175.0	94.6
10	9.1	10.0	1.0	0.5	176.0	95.1
11	10.1	11.0	2.0	1.1	178.0	96.2
12	11.1	12.0	3.0	1.6	181.0	97.8
above	12.0		4.0	2.2	185.0	100.0

Mean = 4.6 Standard deviation = 4.3 Median = 4.0

5.4 Hypothesis 3

Hypothesis 3: A sample population of fifty employees with the highest Gross Absence Rates will show a significantly different pattern of variables such as age, duration of service, number of weeks excess overtime worked, job grade and number of dependents, from a group of fifty employees with the lowest Gross Absence Rates over the financial year from 3.10.1988 through to 1.10.1989. Only employees with longer than one year service duration were included.

Objective 3: To determine whether there are significant differences in the distribution of potentially determining variables between worker groups with high Gross Absence Rates and those with low Gross Absence Rates, for the period from 3.10.1988 to 1.10.1989.

The two sample population groups are described and analysed using the variables of age, service duration, weeks of excess overtime, job grade and number of dependents.

The high absence sample population was 76.0% (thirty-eight employees) male and 24.0% (twelve) female. This group of employees had a mean Gross Absence Rate of 12.2% and a median value of 10.2%, with a range in rates from 7.7% to 37.3%. Standard deviation was 6.1. Mean age was 30.2 years (median = 27 years). The mean and median values were also fairly different for service duration, with the mean standing at 5.2 years and the median at three years. For weeks of excess

overtime there was a range from zero to twenty weeks of excess overtime worked in one year. Mean value was 4.6 with median lower at three weeks excess overtime. The most common job grade for the high absence sample population was A2, falling under the unskilled category for job grade. Twenty-six (52.0%) employees were graded A2. Thirty-one (62.0%) employees were unskilled, seventeen (34.0%) were semi-skilled and only two (4.0%) employees were skilled. Nineteen (38.0%) of the employees had no dependent children and only one employee had five dependents.

In comparison, the low absence sample population group was characterised by a lower Gross Absence Rate, with mean value of 0.8% and a median value of 0.9%, the most common value being 0.0%. The group was composed of a higher proportion of males (41; 82.0%) to females (9; 18.0%) and was slightly older with a mean age of 34.7 years and median age of thirty-two years. The low absence group were also longer serving employees with a mean service duration of nine years and median of eight years. Interestingly, more overtime was worked by this group than by the high absenters. Mean number of weeks excess overtime worked was 7.5 and median four. The range in the number of weeks excess overtime worked for the year varied from zero to thirty-eight. A far smaller proportion of the group were unskilled (15; 30.0%), twenty-six (52.0%) employees were semi-skilled and nine were skilled workers (18.0%), a four times higher proportion than in the high absence group. Frequency distribution for number of dependents was similar for both groups. Eighteen employees (36.0%), had no dependents and only three (6.0%) had four dependents.

Table 53: STATISTICS SUMMARY OF GROSS ABSENCE RATE, AGE, SERVICE DURATION AND WEEKS OF EXCESS OVERTIME WORKED FOR HIGH ABSENCE SAMPLE POPULATION

Statistics Summary	GAR(%)	Age(yrs)	Service Dur(yrs)	Wks Exc Overtime
Sample size	50.0	50.0	50.0	50.0
Mean	12.2	30.2	5.2	4.6
Median	10.2	27.0	3.0	3.0
Mode	10.1	21.0	2.0	0.0
Standard deviation	6.1	9.2	4.8	5.4
Minimum	7.7	18.0	1.0	0.0
Maximum	37.3	60.0	20.0	20.0

Table 54: FREQUENCY TABULATION SHOWING JOB GRADE FOR HIGH ABSENCE SAMPLE POPULATION

Job Grade	Frequency	Relative Percentage
A1	2.0	4.0
A2	26.0	52.0
A3	3.0	6.0
B1	13.0	26.0
B2	4.0	8.0
B3	0.0	0.0
B4	0.0	0.0
C1	0.0	0.0
C2	2.0	4.0

Median = A2

Table 55: FREQUENCY TABULATION SHOWING NUMBER OF DEPENDENTS FOR HIGH ABSENCE SAMPLE POPULATION

Number of Dependents	Frequency	Relative Percentage
0.0	19.0	38.0
1.0	12.0	24.0
2.0	9.0	18.0
3.0	4.0	8.0
4.0	5.0	10.0
5.0	1.0	2.0

Median = 1

Table 56: STATISTICS SUMMARY OF GROSS ABSENCE RATE, AGE, SERVICE DURATION AND WEEKS OF EXCESS OVERTIME WORKED FOR LOW ABSENCE SAMPLE POPULATION

Statistics Summary	GAR(%)	Age(yrs)	Service Dur(yrs)	Wks Exc Overtime
Sample size	50.0	50.0	50.0	50.0
Mean	0.8	34.7	9.0	7.5
Median	0.9	32.0	8.0	4.0
Mode	0.0	29.0	7.0	1.0
Standard deviation	0.6	9.2	5.5	8.8
Minimum	0.0	20.0	1.0	0.0
Maximum	1.8	62.0	21.0	38.0

Table 57: FREQUENCY TABULATION SHOWING JOB GRADE FOR LOW ABSENCE SAMPLE POPULATION

Job Grade	Frequency	Relative Percentage
A1	0.0	0.0
A2	12.0	24.0
A3	3.0	6.0
B1	9.0	18.0
B2	9.0	18.0
B3	5.0	10.0
B4	3.0	6.0
C1	1.0	2.0
C2	8.0	16.0

Median = B2

Table 58: FREQUENCY TABULATION SHOWING NUMBER OF DEPENDENTS FOR LOW ABSENCE SAMPLE POPULATION

Number of Dependents	Frequency	Relative Percentage
0.0	18.0	36.0
1.0	11.0	22.0
2.0	8.0	16.0
3.0	10.0	20.0
4.0	3.0	6.0

Median = 1

The apparent differences in the above described variables were tested for statistically significant differences using

two-sample analysis where the significance of the computed t value was determined.

Table 59: TWO-SAMPLE ANALYSIS OF AGE (YEARS) FOR HIGH AND LOW ABSENCE SAMPLE POPULATIONS

Null Hypothesis: There is no significant difference in the mean values of age between the high absence and low absence sample populations.

		HIGH ABS. SAMPLE POP	LOW ABS. SAMPLE POP	POOLED
Sample Statistics:	Number of obs.	50.000	50.000	100.000
	Mean	30.200	34.680	32.440
	Median	27.000	32.000	31.000
	Standard deviation	9.210	9.217	9.213

Difference between means = -4.480
Confidence Interval for the difference in means: 95 percent
High Absence Population - Low Absence Population:
-8.138 -0.822 at 98 degrees of freedom.

Significance Test: Level of significance = 0.050
Computed t statistic = -2.431
Significance level, p = 0.017

Results: Computed t value significant so reject Null Hypothesis.

The two-sample analysis result of age for the high and low absence sample populations showed that the computed t value was significant at the 0.05 level of significance ($p < 0.05$). The Null Hypothesis is thus rejected, which means that the mean age of the high absence sample population was lower than that of the low absence sample population, the latter being overall "older".

Table 60: TWO-SAMPLE ANALYSIS OF SERVICE DURATION (YEARS) FOR THE HIGH AND LOW ABSENCE SAMPLE POPULATIONS

Null Hypothesis: There is no significant difference in the mean values of service duration between the high absence and low absence sample populations.

		HIGH ABS. SAMPLE POP	LOW ABS. SAMPLE POP	POOLED
Sample Statistics:	Number of obs.	50.000	50.000	100.000
	Mean	5.240	9.020	7.130
	Median	3.000	8.000	6.500
	Standard deviation	4.770	5.457	5.125

Difference between means = -3.780
Confidence Interval for the difference in means: 95 percent
High Absence Population - Low Absence Population:
-5.815 -1.745 at 98 degrees of freedom.

Significance Test: Level of significance = 0.050
Computed t statistic = -3.688
Significance level, p = 0.0004

Results: Computed t value highly significant so reject Null Hypothesis.

The difference in means for service duration between the high absence and low absence sample population groups was found to be highly significant ($t = -3.688$; $p < 0.001$). The Null Hypothesis is rejected. This implies that the low absence sample population had a significantly higher mean service duration and had been employed for a longer period of time at Gabriel than the high absence sample population.

Two-sample analysis was repeated for number of weeks of excess overtime worked by each of the sample populations.

Table 61: TWO-SAMPLE ANALYSIS OF NUMBER OF WEEKS OF EXCESS OVERTIME WORKED BY HIGH AND LOW ABSENCE SAMPLE POPULATIONS

Null Hypothesis: There is no significant difference in the mean values of number of weeks excess overtime worked between the high absence and low absence sample populations.

		HIGH ABS. SAMPLE POP	LOW ABS. SAMPLE POP	POOLED
Sample Statistics: 1	Number of obs.	50.000	50.000	100.000
	Mean	4.600	7.520	6.060
	Median	3.000	4.000	3.500
	Standard deviation	5.398	8.821	7.313

Difference between means = -2.920
Confidence Interval for the difference in means: 95 percent
High Absence Population - Low Absence Population:
-5.823 -0.017 at 98 degrees of freedom.

Significance Test: Level of significance = 0.050
Computed t statistic = -1.997
Significance level, p = 0.049

Results: Computed t value significant so reject Null Hypothesis.

The mean difference in number of weeks of excess overtime worked between the high absence and low absence sample populations was found to be significant ($p < 0.050$) using two-sample analysis. The Null Hypothesis is rejected. Perhaps surprisingly, the low absence sample population had worked significantly more excess overtime than the high absenters.

Owing to the discrete nature of job grade levels, Chi-Square analyis was used to determine whether there were any differences in the distribution of the job grades between the two sample population groups. The number of skilled workers in the high absence sample population was too few for inclusion in the

contingency table. The accepted minimum value for grouping is five. In fact it would not be correct to incorporate skilled workers with semi-skilled workers because the differences regarding pay and work responsibilities are too great. This level of worker was, therefore, not included in the Chi-Square analysis.

Table 62: CHI-SQUARE ANALYSIS OF JOB GRADE FOR HIGH ABSENCE AND LOW ABSENCE SAMPLE POPULATION GROUPS

Null Hypothesis: The proportion of unskilled workers is equal to the proportion of semi-skilled workers for the high absence and low absence sample populations.

Two by Two Contingency Table:

JOB GRADE	SAMPLE POPULATIONS		TOTAL
	HIGH ABSENCE	LOW ABSENCE	
Unskilled (A1-A3)	31.0	15.0	46.0
Semi-skilled (B1-B4)	17.0	26.0	43.0
TOTAL	48.0	41.0	89.0

Level of significance: 0.05
Degrees of freedom : 1.00
Chi-Squared (X^2) : $\sum \frac{(O - E)^2}{E}$

Observed Frequency(O)	Expected Frequency(E)	$\frac{(O - E)^2}{E}$
31.0	24.81	1.55
15.0	21.19	1.81
17.0	23.19	1.65
26.0	19.81	1.93
		$X^2 = 6.94$

Chi-Square = 6.94
Significance level, $p < 0.01$, using the Distribution of X^2 Table (Swinscow, 1981, p.81).
So reject Null Hypothesis

Chi-Square analysis gave a level of significance of $p < 0.01$. The Null Hypothesis is rejected. The distribution of job grades was significantly different between the two sample population

groups when comparing between unskilled and semi-skilled workers. The proportion of unskilled workers was significantly higher in the high absence group.

Chi-Square analysis was also conducted on the discrete variable number of dependents.

Table 63: CHI-SQUARE ANALYSIS OF NUMBER OF DEPENDENTS FOR HIGH AND LOW ABSENCE SAMPLE POPULATION GROUPS

Null Hypothesis: The distribution of number of dependents for the high absence sample population is equal to that for the low absence sample population group.

Three by Two Contingency Table:

NUMBER OF DEPENDENTS	SAMPLE POPULATIONS HIGH ABSENCE	LOW ABSENCE	TOTAL
0	19.0	18.0	37.0
1 - 2	21.0	19.0	40.0
3 and above	10.0	13.0	23.0
TOTAL	50.0	50.0	100.0

Level of significance: 0.05
Degrees of freedom : 2.00
Chi-Squared (X^2) : $\sum \frac{(O - E)^2}{E}$

Observed Frequency(O)	Expected Frequency(E)	$\frac{(O - E)}{E}$
19.0	18.5	0.01
18.0	18.5	0.01
21.0	20.0	0.05
19.0	20.0	0.05
10.0	11.5	0.20
13.0	11.5	0.20
		$X^2 = 0.52$

Chi-square = 0.52
Significance level, $p > 0.75$, using the Distribution of X^2 Table (Swinscow, 1981, p.81).
So accept Null Hypothesis

The result for the Chi-Square analysis was not significant at $p = 0.05$ level of significance. The Null Hypothesis is accepted meaning that the distribution of number of dependents was the same for both the high absence and low absence sample population groups.

On later reflection, the sample of employees qualifying for the third hypothesis should have been one or either sex and not combined as so far illustrated. In the literature there are clear differences between male and female employees in their absence behaviour. For example females have been found to have higher rates of absenteeism than men (Garrison and Muchinsky, 1977), and to be more frequently absent (Sexton and Schumann, 1985). When two-sample analysis was performed on the high absence sample population to determine any significance of the difference between males and females with regard to weeks of excess overtime worked, a significant difference was found ($t = 2.534$; $p = 0.015$). This was repeated on the low absence sample population group. A significant difference was, however, also found between males and females with regard to the amount of excess overtime worked by each ($t = 2.196$; $p = 0.033$). It is not possible to ignore the potential influence maleness or femaleness would have had in the two population groups. Owing to this female employees were subsequently removed from the high absence and low absence sample population groups and the analysis was repeated for male only population groups.

Table 64: TWO-SAMPLE ANALYSIS FOR AGE (YEARS) OF MALE EMPLOYEES BELONGING EITHER TO THE HIGH OR LOW ABSENCE SAMPLE POPULATIONS

Null Hypothesis: There is no significant difference in the mean values of age between the high absence male employees and the low absence male employees.

		HIGH ABS. MALES	LOW ABS. MALES	POOLED
Sample Statistics:	Number of obs.	38.000	41.000	79.000
	Mean	29.184	34.683	32.038
	Median	25.000	32.000	30.000
	Standard deviation	9.915	9.799	9.855

Difference between means = -5.499
Confidence Interval for the difference in means: 95 percent
High Absence Males - Low Absence Males: -9.919 -1.079 at 77 degrees of freedom.

Significance Test: Level of significance = 0.050
Computed t statistic = -2.478
Significance level, p = 0.015

Results: Computed t value significant so reject Null Hypothesis.

The mean difference in ages for males belonging either to the high absence sample population or to the low absence sample population was found to be significantly different ($t = -2.478$; $p < 0.05$). The Null Hypothesis is rejected, this implies that the high absence male group was generally younger in age than the low absence male group.

Table 65: TWO-SAMPLE ANALYSIS FOR SERVICE DURATION (YEARS) OF MALE EMPLOYEES BELONGING EITHER TO THE HIGH OR LOW ABSENCE SAMPLE POPULATIONS

Null Hypothesis: There is no significant difference in the mean values of service duration between the high absence male employees and the low absence male employees.

		HIGH ABS. MALES	LOW ABS. MALES	POOLED
Sample Statistics:	Number of obs.	38.000	41.000	79.000
	Mean	5.026	9.098	7.139
	Median	2.000	8.000	6.000
	Standard deviation	5.043	5.678	5.382

Difference between means = -4.071
Confidence Interval for the difference in means: 95 percent
High Absence Males - Low Absence Males: -6.485 -1.657 at 77 degrees of freedom.

Significance Test: Level of significance = 0.050
Computed t statistic = -3.359
Significance level, p = 0.001

Results: Computed t value significant so reject Null Hypothesis.

There is a significant difference in the mean values for service duration ($t = -3.359$; $p < 0.05$) between the high absence male sample population and the low absence male sample population. Rejecting the Null Hypothesis, conclusion is that length of service was generally longer for the low absence male employees.

Table 66: TWO-SAMPLE ANALYSIS FOR WEEKS OF EXCESS OVERTIME WORKED BY MALE EMPLOYEES BELONGING TO THE HIGH AND LOW ABSENCE SAMPLE POPULATIONS

Null Hypothesis: There is no significant difference in the mean values for weeks of excess overtime worked by the high absence male employees and the low absence male employees.

		HIGH ABS. MALES	LOW ABS. MALES	POOLED
Sample Statistics:	Number of obs.	38.000	41.000	79.000
	Mean	5.632	8.756	7.253
	Median	4.000	5.000	4.000
	Standard deviation	5.725	9.276	7.775

Difference between means = -3.125
Confidence Interval for the difference in means: 95 percent
High Absence Males - Low Absence Males: -6.611 0.362 at 77 degrees of freedom.

Significance Test: Level of significance = 0.050
Computed t statistic = -1.785
Significance level, p = 0.078

Results: Computed t value not significant so accept Null Hypothesis.

The amount of excess overtime worked by the two different male populations was not found to be significantly different ($p > 0.05$) agreeing with the Null Hypothesis, which suggests that this factor had no strong influence on absence behaviour in these groups of males.

As before, the discrete nature of job grade levels necessitated the use of Chi-Square analysis to determine significant differences in the distribution of these job grades between the two male sample population groups. Comparison was only done between unskilled and semi-skilled workers, there being too few skilled workers among the high absence male population to allow their inclusion, and because the skilled workers were not regarded as strictly comparable.

Table 67: CHI-SQUARE ANALYSIS OF JOB GRADE FOR HIGH ABSENCE MALE AND LOW ABSENCE MALE SAMPLE POPULATIONS

Null Hypothesis: The proportion of unskilled workers is equal to the proportion of semi-skilled workers for the high absence male and low absence male sample populations.

Two by Two Contingency Table:

JOB GRADE	SAMPLE POPULATIONS		TOTAL
	HIGH ABSENCE	LOW ABSENCE	
Unskilled (A1-A3)	19.0	10.0	29.0
Semi-skilled (B1-B4)	17.0	22.0	39.0
TOTAL	36.0	32.0	68.0

Level of significance: 0.05
Degrees of freedom : 1.00
Chi Squared (X^2) : $\sum \frac{(O - E)^2}{E}$

Observed Frequency(O)	Expected Frequency(E)	$\frac{(O - E)^2}{E}$
19.0	15.35	0.87
10.0	13.65	0.97
17.0	20.65	0.64
22.0	18.35	0.72
		$X^2 = 3.20$

Chi-Square = 3.20
Significance level, $p > 0.05$, using the Distribution of X^2 Table (Swinscow, 1981, p.81).
So accept Null Hypothesis

The result for Chi-Square analysis was not significant ($p > 0.05$). The Null Hypothesis is, therefore, accepted in that the distribution of job grades was not significantly different when comparing for the variables unskilled and semi-skilled workers. The proportion of unskilled workers to semi-skilled workers was similar for the high absence male and low absence male sample groups.

Chi-Square analysis was also conducted on the discrete variable number of dependents.

Table 68: CHI-SQUARE ANALYSIS OF NUMBER OF DEPENDENTS FOR HIGH ABSENCE MALE AND LOW ABSENCE MALE SAMPLE POPULATION GROUPS

Null Hypothesis: The proportion of number of dependents for the high absence male sample population is equal to this proportion for the low absence male sample population group.

Three by Two Contingency Table:

NUMBER OF DEPENDENTS	MALE SAMPLE POPULATIONS HIGH ABSENCE	LOW ABSENCE	TOTAL
0	16.0	15.0	31.0
1 - 2	14.0	15.0	29.0
3 and above	8.0	11.0	19.0
TOTAL	38.0	41.0	79.0

Level of significance: 0.05
Degrees of freedom : 2.00
Chi-Squared (X^2) : $\sum \frac{(O - E)^2}{E}$

Observed Frequency(O)	Expected Frequency(E)	$\frac{(O - E)^2}{E}$
16.0	14.91	0.08
15.0	16.09	0.07
14.0	13.95	0.0002
15.0	15.05	0.0002
8.0	9.14	0.14
11.0	9.86	0.13
		X^2= 0.42

Chi-Square = 0.42
Significance level, $p > 0.75$, using the Distribution of X^2 Table (Swinscow, 1981, p.81).
So accept Null Hypothesis

The result for the Chi-Square analysis was not significant at $p = 0.05$ level of significance. The Null Hypothesis is accepted meaning that there is no difference in proportion of number of dependents in the high absence male and low absence male sample population groups.

When the high absence and low absence sample populations (including both sexes) were compared significant differences were found for the variables age, service duration, number of weeks of excess overtime worked and job grade but not for number of dependents. The results suggest that the high absence sample population is composed of younger employees, who have worked for a shorter period of time with the company, have worked fewer weeks of excess overtime and are generally of a lower job grade than the low absence employees. Both groups support the same number of dependents and in similar proportions. The results were different for the male only sample populations. Here,

significant differences were only found for the variables age and service duration. Between the high absence male and low absence male sample populations no significance differences were found for weeks of excess overtime worked, job grade or number of dependents. In conclusion, it is the older, longer serving male employee with the lower absence rates, and the amount of excess overtime worked, or the job grade held, does not appear to influence his absence behaviour.

To further investigate the relationship between weeks of excess overtime worked and absence a regression analysis was performed using Statgraphics: Statistical Graphics System By Statistical Graphics Corporation, Version 4.0 (1989). Regression analysis was only conducted on the high absence male and low absence male sample populations. Two-sample analysis was once again used to determine differences in the Gross Absence Rates for unskilled and semi-skilled male employees belonging to the high absence and low absence male sample populations.

Table 69: REGRESSION ANALYSIS OF WEEKS EXCESS OVERTIME WORKED AND GROSS ABSENCE RATE FOR THE HIGH ABSENCE MALE SAMPLE POPULATION

Null Hypothesis	:	There is no significant relationship between weeks of excess overtime worked and Gross Absence Rate for the high absence male sample population.
Dependent variable	:	Gross Absence Rate
Independent Variable	:	Weeks of excess overtime
Significance Test	:	Level of significance = 0.050
		Degrees of freedom = 36.000
		Computed t statistic = -1.280
		Probability level (p) = 0.209

Descriptive Statistics :	Number of observations	= 38.000
	Y-intercept	= 14.403
	Slope estimate	= -0.244
	Correlation Coefficient (r)	= -0.209
Results:	Computed t value not significant so do not reject Null Hypothesis.	

Regression analysis found the relationship between weeks of excess overtime worked and Gross Absence Rate for the high absence male sample population not to be significant ($t = -1.280$; $p > 0.05$). Correlation was negative ($r = -0.209$). See Figure 12, page 70, for the linear regression of number of weeks excess overtime worked on Gross Absence Rate for the high absence male sample population. The interpretation of this is that as the amount of excess overtime worked by the high absence male group increased absence behaviour improved! But the relationship was not found to be significant.

The regression analysis was repeated on the low absence male sample population.

Table 70: REGRESSION ANALYSIS OF WEEKS EXCESS OVERTIME WORKED AND GROSS ABSENCE RATE FOR THE LOW ABSENCE MALE SAMPLE POPULATION

Null Hypothesis	:	There is no significant relationship between weeks of excess overtime worked and the Gross Absence Rate for the low absence male sample population.
Dependent variable	:	Gross Absence Rate
Independent Variable	:	Weeks of excess overtime
Significance Test	:	Level of significance = 0.050
		Degrees of freedom = 39.000
		Computed t statistic = -2.391
		Probability level (p) = 0.022

FIGURE 12: REGRESSION OF NUMBER OF WEEKS EXCESS OVERTIME AND GROSS ABSENCE RATE FOR HIGH ABSENCE MALE SAMPLE POPULATION

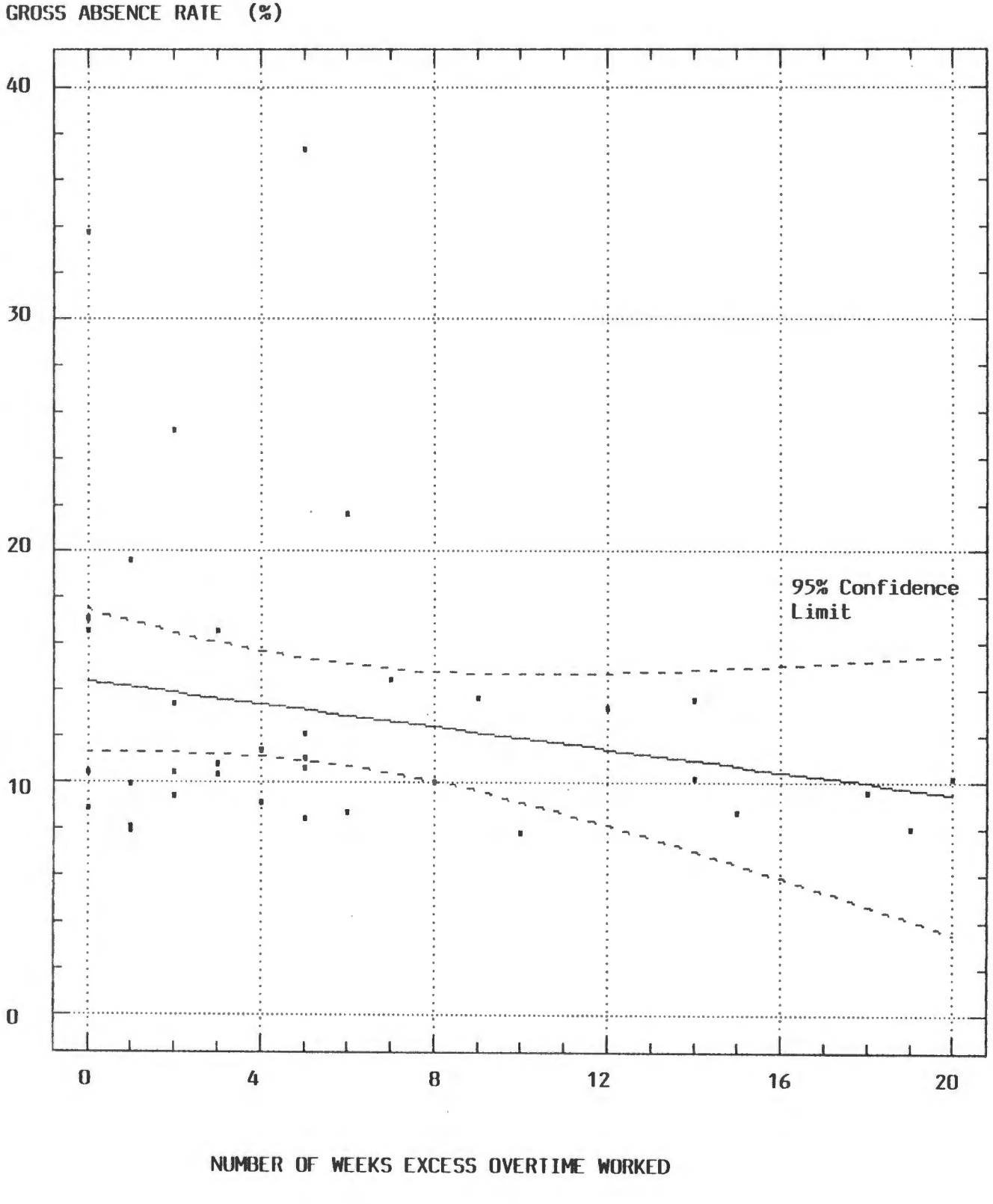
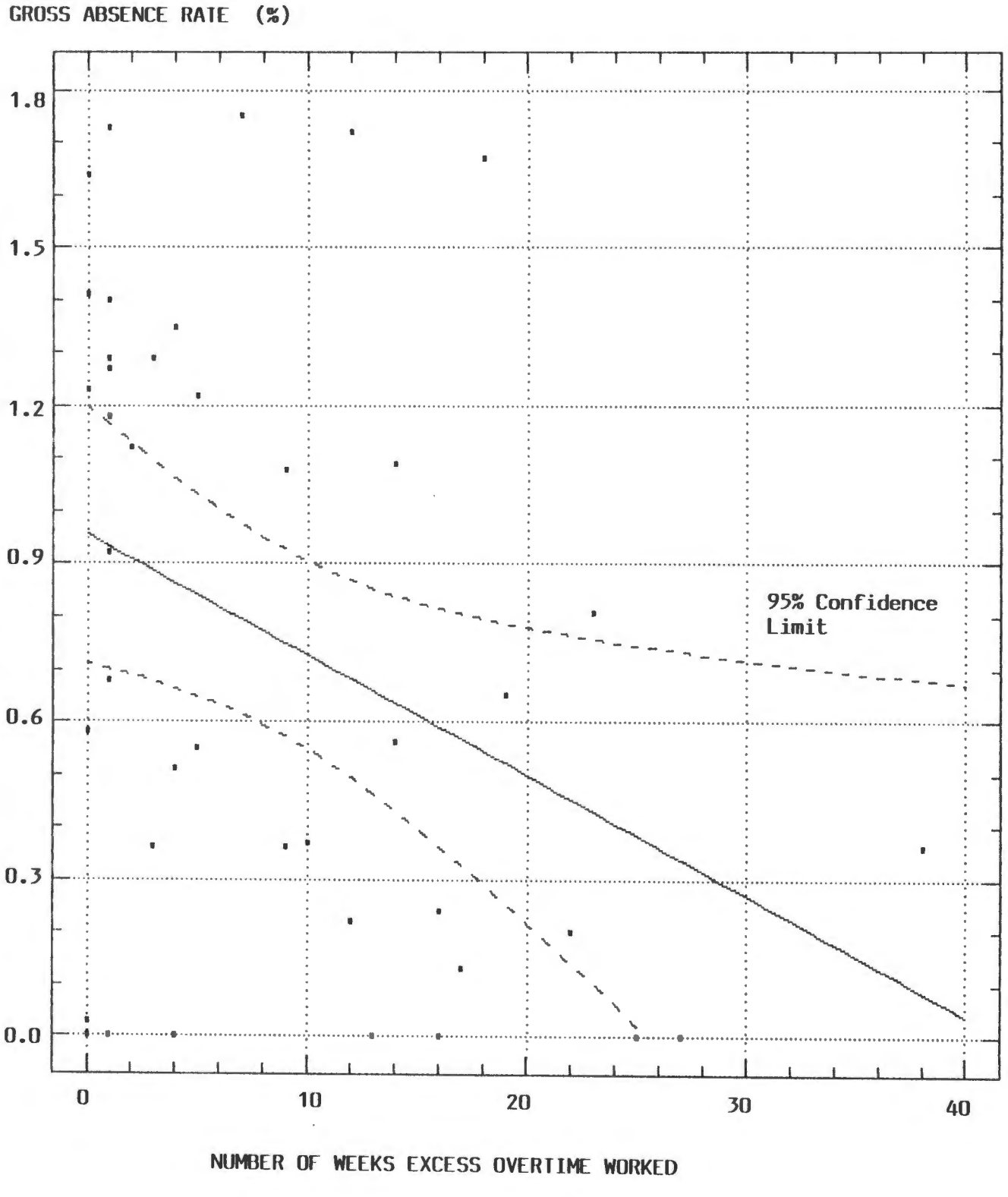


FIGURE 13: REGRESSION OF NUMBER OF WEEKS EXCESS OVERTIME AND GROSS ABSENCE RATE FOR LOW ABSENCE MALE SAMPLE POPULATION



Descriptive Statistics :	Number of observations	= 41.000
	Y-intercept	= 0.956
	Slope estimate	= -0.023
	Correlation Coefficient (r)	= -0.358

Results: Computed t value significant so reject Null Hypothesis.

There was a significant negative correlation on the regression analysis between number of weeks excess overtime worked and Gross Absence Rate for the low absence male sample population ($t = -2.391$; $p < 0.05$; and $r = -0.358$). The negative correlation indicates that as overtime work increased, Gross Absence Rates decreased and thus absence behaviour improved. Though the relationship was found to be meaningful, this does not mean that by increasing the amount of overtime worked absence rates will decrease. This does, however, confirm the finding on page 5.59, that the low absence group had worked more excess overtime than the high absence group. Figure 13, page 71, depicts the linear regression of number of weeks excess overtime worked on Gross Absence Rate for the low absence male sample population.

Finally, two-sample analysis was conducted on the Gross Absence Rates between the unskilled and semi-skilled male employees of the high absence sample population, followed by a similar analysis on the low absence sample population.

Table 71: TWO-SAMPLE ANALYSIS OF GROSS ABSENCE RATE FOR UNSKILLED AND SEMI-SKILLED MALE EMPLOYEES IN THE HIGH ABSENCE SAMPLE POPULATION

Null Hypothesis: There is no significant difference in the mean values of Gross Absence Rates for

unskilled and semi-skilled male employees from the high absence sample population.

		UNSKILLED MALES	SEMI-SKILLED MALES	POOLED
Sample Statistics:	Number of obs.	19.000	17.000	36.000
	Mean	15.428	10.588	13.142
	Median	10.790	9.930	10.415
	Standard deviation	8.653	2.452	6.517

Difference between means = 4.840
Confidence Interval for the difference in means: 95 percent
Unskilled males - Semi-skilled males: 0.418 9.263 at 34 degrees of freedom.

Significance Test: Level of significance = 0.050
Computed t statistic = 2.225
Significance level, p = 0.033

Results: Computed t value significant so reject Null Hypothesis.

For the high absence sample population group there was a significant difference in mean Gross Absence Rates between the unskilled and semi-skilled male employees, the unskilled group again showing a relatively higher absence behaviour than the semi-skilled one.

Table 72: TWO-SAMPLE ANALYSIS OF GROSS ABSENCE RATE FOR UNSKILLED AND SEMI-SKILLED MALE EMPLOYEES IN THE LOW ABSENCE SAMPLE POPULATION

Null Hypothesis: There is no significant difference in the mean values of Gross Absence Rates for unskilled and semi-skilled male employees from the low absence sample population.

		UNSKILLED MALES	SEMI-SKILLED MALES	POOLED
Sample Statistics:	Number of obs.	10.000	22.000	32.000
	Mean	1.031	0.643	0.764
	Median	1.155	0.460	0.615
	Standard deviation	0.605	0.615	0.612

Difference between means = 0.388
Confidence Interval for the difference in means: 95 percent
Unskilled males - Semi-skilled males: -0.088 0.865 at 30 degrees of freedom.

Significance Test:	Level of significance =	0.050
	Computed t statistic =	1.664
	Significance level, p =	0.107

Results: Computed t value not significant so accept Null Hypothesis.

Contrary to the results for the high absence sample population, two-sample analysis for the low absence sample population group did not show a significant difference in mean Gross Absence Rates between the unskilled and semi-skilled male employees ($t = 1.664$; $p > 0.05$). In this group there appeared not to be a difference in absence behaviour between the unskilled and semi-skilled male employees.

The analysis conducted for the present study was chosen as being the most suitable, to the author's knowledge, for investigating the hypotheses. The range of analysis may be limited, but fair conclusions can be drawn as seen in chapter six.

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CHAPTER 6

DISCUSSION AND CONCLUSIONS

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6.1 Introduction

Chapter 2 explained the theory behind absence taking and presented various models describing absence behaviour. However, it is often asked "what causes absence?" or "why does a person take time off work?". Johns (1987), describing several reasons for absence indicates that the most common excuse given by employees is illness, since it is a socially accepted reason for staying at home. In reality, it is not known how much absence is due to legitimate debilitating illness.

If sickness were the real cause of most absence periods, absenteeism would be expected to decrease as medical care improves. Research has shown otherwise, with medical diagnoses given for absenteeism changing from more objective syndromes and problems to psychological disorders and musculoskeletal conditions, such as low back pain. This suggests that workers and physicians explain absences in terms of medical conditions that are popular at the time and, therefore, more acceptable to management.

Secondly, personality factors, are often blamed by managers and other employees as an explanation for the absence, for example,

laziness, malingering, irresponsibility, a poor work ethic or other deviant aspects of personality. People tend to explain the absence behaviour of others using negative personal terms, even when they have a poor absence record themselves.

Absenteeism may also be interpreted in economic terms. Absence has been found to decrease when unemployment is high, when workers are not prepared to put their jobs at risk, and then again increase when alternative employment and overtime pay is readily available. It has also been shown that sick-pay plans contribute towards increased absence rates (Pocock, 1973; Willings, 1968).

Psychologists look upon absenteeism as a form of withdrawal from a dissatisfying job. Dislike of the work itself is the best predictor of absenteeism, above unhappiness with supervisors, coworkers or other factors. Dissatisfaction is generally reflected more in frequency of absence rather than the total number of days missed.

Lastly, some researchers suggest that absence is a result of social control, a complex product of what coworkers, supervisors and friends think and say about absenteeism. This in turn relates to variables such as occupation, office or plant layout, absence control systems and the social mix of the work force. These combine to form an "absence culture" for a work group, department, organisation or occupation. Weak absence cultures exert little control and strong absence cultures may provide specific norms about how much or when absenteeism is accepted.

Unfortunately, it takes more than any one of these factors to adequately explain absence behaviour. Often, it is the product of medical conditions, personality factors, job attitudes, economic consequences and cultural norms that interact differently in each work setting to produce an absence.

6.2 Hypothesis 1

Organisational policies differ with respect to sick pay. At Gabriel SA (Pty) Ltd the opportunity arose where two different policies regarding sick payment could be compared. Some companies provide sick payment from the first day of sickness absence, while others award payment only from the third day of sickness absence. Medical certification is usually required in both cases before the employee qualifies for sick payment. At Gabriel (within limits), the absent employee receives full wages for certified sick absence, but this is not always the case. Riordan (1988a), in her report on worker absenteeism writes "... The consequences of each of the policies described have been much speculated upon, yet there is little empirical research reported in the literature." (p. 23). She goes on to say "... If an empirical investigation finds that the incidence and duration of medically certified or sick absences correspond significantly to the payment principles of different organisations' absence policies, valuable information regarding voluntary and involuntary absenteeism will be gained." (p. 25).

Gabriel industrial council rated employees with less than five years service duration experienced a change in sick pay policy. Effective from 29.08.1988 these employees received sick payment from day one of certified sickness absence, where previously they had only qualified for sick payment from the third day of certified sickness absence. This change in company policy as a result of an amendment to the Main Agreement for the Motor Industry (1988), (see Appendix A), enabled the two different policies to be compared for the same population group in a before and after situation.

The effect of the change in sick pay policy was analysed using paired-sample analysis on three absence rates, namely Sickness Absence Rate, Sickness Absence Frequency Rate and One Day Sickness Absence Frequency Rate. The mean values for Sickness Absence Rate (2.1%), Sickness Absence Frequency Rate (0.14) and One Day Sickness Absence Frequency Rate (0.05) all increased by more than 100% (4.1%; 0.33 and 0.11 respectively) for the sample population. It was found that the absence behaviour described by these three absence rates was significantly higher in the second year of study when sick payment from the first day of sickness absence was introduced, compared to the previous year when sick payment was only received from the third day of absence. The results for the Sign Test conducted on the three absence rates at a 40% criterion level were significant at the 0.001 level of significance for Sickness Absence Frequency Rate, and at the 0.05 level of significance for Sickness Absence Rate and One Day Sickness Absence Frequency Rate. They are complementary to the paired-sample analysis results in that they

confirm that the absence rates for the second year of study were indeed significantly higher than those for the first year.

This is in contrast with the results for the "comparison of trend" sample population. The "comparison of trend" sample population, though considerably smaller (only fourteen employees), were similar with regard to age, service duration and working conditions. Being non-industrial council workers their conditions of employment were governed by the Basic Conditions of Employment Act, 1983, (Appendix F). They were all employees with less than five years service whose sick pay policy remained unchanged in that they already qualified for sick payment from day one of sickness absence. The three absence rates for the "comparison of trend" sample population did not change. The absence rates were neither significantly higher nor lower for the second year. This indicates that absence behaviour for this particular group of employees remained essentially unchanged over the two years. The non-parametric Sign Test for small sample sizes using a 10% criterion change also showed that there were no significant changes in absence rates from the first year to the second year ($p > 0.05$). That there was no change in absence behaviour in this "control" group reinforces the conclusion that the differences in the group affected by the change in sick pay policy were due to that change.

The sample population of 107 industrial council employees all remained employed over the two year study period. Conditions of employment, apart from the change in sick pay policy, and

working conditions, were to the author's knowledge, constant. The change in sick pay policy resulting in more generous sick pay terms for employees with less than five years service duration provides the only reasonable explanation for the increased sickness absence behaviour, which was conclusively shown to be significant. This highlights the influence and importance of sick pay policies with regard to absence behaviour.

The Sickness Absence Frequency Rate for the sample population had the largest increase in mean rates at 138.3%, with the One Day Sickness Absence Frequency Rate having a 128.8% increase. The mean rate for Sickness Absence Rate increased by 100.6%. The greater increase in frequency rate shows a trend towards more frequent absences rather than increased length of absence periods. Speculation would have it that the employees are now choosing to absent themselves more frequently, but for shorter duration, in the knowledge that they will be paid for that time away from work anyway. Here, absence would be the result of a decision process based largely on economic factors. Being of short duration, the absence could very well be considered as a possibly voluntary withdrawal from the work environment. Yet, organisational control systems, absence culture, work-group norms, personal factors and work attitudes would also have an important role to play in contributing towards attendance or absence.

Riordan (1988a) in her study on worker absenteeism found that when comparing two companies of similar geographic, demographic

and employment variables but with differing sick pay policies, Gross Absence Rates were very similar. It was the duration of sickness absences that varied. Where payment for sick absence commenced immediately, over 75% of all sick absences were of short duration (one and two day absences). Where sick payment was only received from the third day of absence such longer duration absences were more numerous (three days and over). In the current report frequency of absence for the sample population showed the greatest increase of the three rates, but there was also an increase in the total amount of sickness absence taken. A closer comparison is not possible, since the recording of duration of absence periods was not an objective of the study.

Buzzard and Shaw (1952) and Denerley (1952) have shown that when a paid sick leave scheme was introduced the time lost through sickness was substantially increased. They explained this not as abuse of the sick pay policy but rather that employees could now afford to be absent when ill. Pocock (1973) found that sickness absence rates in the first six months of service were less than half the rates during the next four and a half years. He presumed this to be partially caused by the lack of company sick pay during the initial period. Morgan and Herman (1976) when investigating whether organisational policies and practices can be effective deterrents of absenteeism, concluded that organisational policies regarding absenteeism do not act as deterrents to absenteeism. Loss of wages was the only deterrent perceived to be important. Hammer, Landau and Stern (1981) also found that absenteeism was affected by financial commitment.

Against this background the findings of this part of the study, investigating the influence of a change in sick pay policy, can now be summarized.

Summary: The first objective which was to determine whether the introduction of sick payment from the first day of sickness absence, for hourly paid employees with less than five years service duration, influenced the sickness absence pattern of these employees, was achieved. Sickness absence behaviour increased significantly. This thus confirms Hypothesis 1: The introduction of sick payment from the first day of sickness absence as opposed to payment from only the third day of sickness absence, effective from 29.08.1988, for employees with less than five years service duration, tends to increase the number of sick days taken.

6.3 Hypothesis 2

Gabriel SA (Pty) Ltd initiated a negative incentive bonus scheme in an attempt to improve the company's absence behaviour. The programme was operative from 3.10.1988 through to 1.10.1989, the date management decided not to continue with the programme as they felt it was ineffective. The absence behaviour of each employee determined the annual bonus they received. The bonus rate achieved by the whole company using the General Incentive Bonus Scheme would for each employee be reduced by the full percentage that that employee had been absent over the bonus year (see Appendix C). This rule would only apply to employees

in so far their gross rate of absenteeism exceeded 3% (seven days absence or sixty-three hours absent in the year).

For this part of the study the negative incentive bonus scheme sample population consisted of 331 permanent, hourly paid employees who were continuously employed for the two year study period from 28.09.1987 to 1.10.1989. The aggregated Gross Absence Rate for all 331 employees had a mean value of 4.9% for the first year, when GAR was taken as one of the qualifying criterion for the General Incentive Bonus Scheme which determined the company's annual bonus. For the second year for which each employee's own Gross Absence Rate influenced the annual bonus he/she received, the sample population's mean value for the GAR increased to 5.1%. This was a 5.4% increase in the mean rate. Using paired-sample analysis, the increase in mean aggregated Gross Absence Rate was not found to be significant ($t = -1.101$; $p > 0.05$). Unfortunately the distribution was skewed owing to the high proportion of zero values, and this may have influenced levels of significance. There was also a concomitant decrease in the number of employees who achieved a GAR of 3% or less for the second year. The number of employees with this percentage decreased from 120 (36.3%) to 102 (30.8%), a reduction of 15.0% for this proportion of employees.

To determine whether the negative incentive bonus scheme had indeed no effect on absence behaviour a comparison should be made with the overall increase in mean Gross Absence Rate of the company as a whole. The company experienced a 14.2% increase in GAR over this period, from 5.1% to 5.8%, which is considerably

greater than that for the sample population. However, a direct comparison cannot be made owing to the instability of the population, and it is perhaps understandable that management decided to discontinue this policy.

To assess for possible influence of the negative incentive bonus scheme on absence behaviour in another way, employees with less than five years service duration were excluded to eliminate the effect of changes to sick pay policy on absence, as shown in Hypothesis 1. The reduced sample population consisted of 185 employees with more than five years service duration. This group of older employees had a slightly higher proportion of females.

The aggregated mean value for Gross Absence Rate for this second sample population decreased from the first year to the second. The mean value from October 1987 to September 1988 was 5.0% decreasing to 4.6% for the second twelve month period, a 7.4% decrease in rates. Distribution again was considerably skewed for the second year (skewness = 4.3), with a high value for kurtosis (28.4). On paired-sample analysis the decrease in the aggregated mean GAR for the second year was found not to be significantly different from the mean value for the first year. There was however an increase in the number of employees with a GAR of 3.0% or less in the second year. Fifty-nine employees (31.9%) had an aggregated GAR of 3.0% or less for the first year increasing to sixty-nine employees (37.3%) for the second twelve months. The 16.9% increase in number of employees with this percentage was not found to be significant ($p > 0.05$).

This second sample population for Hypothesis 2 is more likely to demonstrate a possible influence of a negative incentive bonus scheme on absence behaviour. From the results, it would appear that the negative incentive bonus scheme had at least some influence on the absence behaviour of employees with more than five years service duration.

While, the scheme was operative, the effect of receiving a reduced bonus dependent on one's absence behaviour would only be felt at the end of the financial year when the company's General Incentive Bonus had been calculated. Till then, employees would be taking the immediate "bonus" of paid days absent without perhaps fully appreciating the possible consequences on their annual bonus at the year end. The real longer term influence of such a scheme on absence behaviour would best be assessed over a few years. Employees, once having experienced a reduction in their annual bonus a few times, would be in a better position to decide whether or not to adapt their absence behaviour.

Punishment and negative incentive control programmes have been found to be more effective when an absence problem is attributed largely to a high absence minority (Stone, 1980). Baum's (1978) results support the effectiveness of an attendance control policy among chronically absent workers, but with no improvement in attendance among regular attenders. The combined approach to control programmes utilises methods aimed at changing the attendance behaviour of both those who respond well to positive incentives and those who respond better to disciplinary and pecuniary threats. The disciplinary sanctions became

operational only after the worker had failed to respond to the incentives to attend regularly (Baum, 1978).

The lack of motivation for the regular attender to improve on his attendance record possibly limited the effect of the Gabriel negative incentive bonus scheme. The annual bonus is a regularly received company benefit, though it could be withdrawn at management's discretion. As such it may tend to be seen more as a "right" than as a motivating factor. In the same way that the penalty was individualised, an additional bonus could be incorporated into an employee's annual bonus dependent on their good attendance behaviour, and this positive incentive might prove to be more influential. Schlotzhauer and Rosse (1985) strongly advocated rewarding the regular attender in the same manner that good work performance is rewarded by job promotion or wage increase.

Summary: The second objective was to determine the absence behaviour of Gabriel's hourly paid population following the implementation of a penalty system that influenced each employee's annual bonus, based on each employee's absence record for the financial year from 3.10.1988 to 1.10.1989, compared to the previous twelve months, when no penalty system existed. Because the absence behaviour of the sample population group, using the measurement aggregated Gross Absence Rate, had not significantly improved, the second hypothesis could not be confirmed. However, out of the 185 employees examined, the proportion of individuals who did not qualify for a deduction of their bonus increased by 16.9% in the second year. Hypothesis 2

stated that the introduction of the penalty system, based on individual absence behaviour, will significantly reduce the number of absence days in the company.

6.4 Hypothesis 3

The objective of Hypothesis 3 was to determine whether there were significant differences in the distribution of potentially determining variables between worker groups with high Gross Absence Rates and those with low Gross Absence Rates, for the year period between 3.10.1988 and 1.10.1989.

The high absence sample population had a mean Gross Absence Rate of 12.2% (median = 10.2%). This group was composed of thirty-eight male employees (76.0%) and twelve female employees (24.0%). Mean age was 30.2 years and median age was 27.0 years. The low absence sample population group had a markedly contrasting mean Gross Absence Rate of 0.8% (median = 0.9%) and the most frequent value was 0.0%. There was a higher proportion of males (forty-one males or 82.0%) in this group to females (nine females or 18.0%). Employees were slightly older with a mean age of 34.7 years and median age of 32.0 years. The two-sample analysis result of age for the high and low absence sample populations showed that the computed t value was significant at the 0.05 level of significance ($t = -2.431$; $p < 0.05$). Mean age for the high absence sample population was found to be significantly lower than for the low absence sample population. This is in agreement with the literature where

older workers, particularly males, have shown lower rates of avoidable absence (Rhodes, 1983), and younger workers have been found to be more frequently absent (Sexton and Schumann, 1985).

Mean value for service duration was 5.2 years (median = 3.0 years) for the high absence sample population, while the low absence group were longer serving employees whose mean service duration was 9.0 years (median 8.0 years). Mean value for service duration for the high absence sample population group was found to be significantly lower ($t = -3.688$; $p < 0.001$) than that for the low absence sample population group. This suggests that the longer serving employee has a lower absence rate. The literature is inconclusive concerning service duration and its relationship with absence. Several author's show a negative relationship with absenteeism (Keller, 1983; Popp and Belohlav, 1982; Fitzgibbons and Moch, 1980; Nicholson, Brown and Chadwick-Jones, 1977). However, Hammer, Landau and Stern (1981), found no conclusive evidence for the relationship of job tenure and absence. The relationship of length of service with other factors such as age complicates any association found between it and sickness absence (Pocock, 1973). Pocock (1973) did, however, find a fall in absence frequency rate with increased length of service while the number of days lost remained static. He associated this with greater job responsibility and job satisfaction that a longer serving employee usually experiences.

A maximum number of 20.0 weeks of excess overtime were worked during the year by any one employee of the high absence sample

population. The mean value was 4.6 with median lower at 3.0 weeks excess overtime. The low absence sample group worked on average more excess overtime with the mean number of weeks excess overtime worked being 7.5 and median 4.0 weeks. A maximum of 38.0 weeks excess overtime was worked by one employee in the group. The difference of the mean in number of weeks of excess overtime worked between the high absence and low absence sample populations was found to be significant ($t = -1.997$; $p < 0.05$). The low absence sample population group worked a significantly greater amount of excess overtime than the high absence group. This agrees with Behrend (1974); Walter and de la Mare (1971) who found no evidence for a positive association between high overtime and absence from work. Though, the author in an earlier pilot study has found a positive, significant relationship between company overtime and absence for Gabriel employees (Winfield, 1988). It would appear that, contrary to popular belief, high levels of overtime do not adversely affect absence behaviour.

Of the high absence sample population thirty-one (62.0%) employees were unskilled, seventeen (34.0%) were semi-skilled and only two (4.0%) employees were skilled. The most common job grade for the high absence sample population was A2, graded unskilled. Twenty-six (52.0%) employees were graded A2. Interestingly, a far smaller proportion of the low absence group were unskilled (fifteen employees or 30.0%), twenty-six (52.0%) employees were semi-skilled and nine were skilled workers (18.0%), a four times higher proportion than in the other group. Chi-Square analysis for discrete variable job grade,

gave a level of significance of $p < 0.01$. This means that the high absence sample population group had a significantly higher proportion of unskilled workers than the low absence sample population. Skilled workers as a subgroup could not be compared owing to there being too few skilled employees in the high absence group. This in itself is worthy of comment. The low absence group had a far higher proportion of skilled employees, working higher levels of overtime but with very low absence rates. Wages are associated with job grade. Unskilled employees received between R3.50 and R4.50 per hour at commencement of study year. Semi-skilled employees earned between R4.00 and R8.00 per hour, and skilled workers above those rates. Rate of pay may play some role in influencing absence or attendance behaviour. The literature is indecisive on the role of pay level on absence behaviour. Shepherd and Walker (1958) found that men at higher wage levels lost more time through absence than men at lower wage levels, while Behrend (1974), reported greater absence among employees in the lower earnings group. Wages received by the unskilled and semi-skilled employees were noticeably different, but it would be impossible to say whether this influenced absence behaviour.

The frequency distribution for number of dependents was very similar for both groups. The result for Chi-Square analysis was not significant at $p > 0.05$ level of significance, meaning that the proportion of number of dependents was not really different for the high absence and low absence sample population groups. Researchers show conflicting results on the influence that number of dependents or family responsibilities have on absence

behaviour. Popp and Belohlav (1982); Hammer, Landau and Stern (1981), and Behrend (1974), found no evidence for relating family size with absenteeism, while Fitzgibbons and Moch (1980), concluded from their study that dependents act as incentives to attend rather than as pressures inducing absence.

Thus, two profiles can be drawn. The employee in the high absence sample population tends to be younger with shorter duration of service. Owing to a lower job grade, his job responsibilties are more limited and he may not have developed a deep sense of loyalty to the company. He, too, may not want to work large amounts of overtime because of non-work attractions, low family commitments, etc.

The employee from the low absence sample population is an older person with subsequently longer duration of service. Owing to his length of service with the company he may have received various job promotions with resultant increased job responsibilty. He can no longer "afford" to be absent because no one is able to take his place and overtime becomes necessary with increased production demands or poor company productivity. These two profiles would also apply to the female gender.

However, when the analysis was repeated on males only in the high absence and low absence groups different results were found. There was a significant difference in the means of only two of the determining variables: age and service duration. The high absence male sample employees were significantly younger and had worked for a significantly shorter period of time with

the company than the low absence male sample employees. The differences in the mean values for number of weeks excess overtime worked and distribution of job grade were, however, no longer significant, as was the distribution of number of dependents. These results do not disagree with those found in the literature where the only indisputable finding has been the relationship between age and absenteeism. The analysis results given in this study are in accordance with that.

In an attempt to obtain further detailed insight available data were subjected to more analysis. On regression analysis a significant negative correlation was found between number of weeks excess overtime worked and Gross Absence Rate for the low absence male sample population only ($t = -2.391$; $p < 0.05$; and $r = -0.358$). This indicates that as overtime work increased absence behaviour improved, supporting the suggestion that the older, longer serving male employee with possibly greater job responsibilty or the need to work a high proportion of overtime does not take advantage of sick benefits even when experiencing increased work pressures. No significant positive or negative correlation was found between excess overtime worked and absence behaviour for the high absence male sample population.

Lastly, two-sample analysis was conducted on the Gross Absence Rates between the unskilled and semi-skilled male employees of the high absence sample population, followed by the same analysis for the low absence sample population. The unskilled male employees in the high absence sample population had significantly higher Gross Absence Rates than the semi-skilled

male employees (computed t statistic = 2.225 with p value of 0.033). In contrast, the results for the low absence sample population did not give a significant difference in mean Gross Absence Rate between the unskilled and semi-skilled male employees ($t = 1.664$; $p > 0.05$). Here absence behaviour would appear to be similar for the unskilled and semi-skilled low absence male sample employee. These results indicate that only in the high absence male sample population semi-skilled workers had a significantly lower mean GAR for the study year than unskilled workers. One can philosophize that the younger, unskilled, newer company employee may not only not have the same experience, responsibilty or even company loyalty as the older employee but that the status of a higher job grade is so important that there an employee will maintain a lower absence record not to jeopardize his position. For the low absence sample population group there was no significant difference in absence behaviour between the levels of unskilled and semi-skilled worker, suggesting that other variables, such as age and length of service, have a stronger influence on absence behaviour.

This poses the question, which variables or information could management utilise to improve the absence behaviour in their company? There appear to be few organisational elements which strongly determine high absence or low absence. In the literature surveyed an effective programme, policy or strategy with broad application was not found. Certainly, some aspects of control programmes and company policies help toward generating improved attendance behaviour, and it is likely that

a multifaceted programme would be the most effective. It would appear from the results of Hypothesis 3, that with regard to the absence behaviour of Gabriel SA (Pty) Ltd, it would be in the company's best interest to promote and maintain the long serving employee. The years of experience, knowledge, loyalty and pride in the company of that employee may all be favourable factors for good attendance. For the younger employee with a shorter service duration, job grade is important and this aspect could be given attention by management for improving absence behaviour.

Summary: Hypothesis 3 was only partially confirmed. The third hypothesis stated that a sample population of fifty employees with the highest Gross Absence Rates would show a significantly different pattern of variables, such as age, duration of service, number of weeks excess overtime worked, job grade and number of dependents, from a group of employees with the lowest Gross Absence Rates over the financial year from 3.10.1988 through to 1.10.1989. Age, duration of service, number of weeks excess overtime worked and job grade were significantly different between the high absence sample population and low absence sample population but only age and duration of service remained significantly different when two-sample analysis was conducted on only the male employees of these two sample populations.

It is not possible to compile a list of proven variables characterising either the frequently absent employee or the one with good attendance, but the literature is very clear on

predicting absenteeism from prior absenteeism. The results from Ivancevich's (1985) study "... indicate that researchers should continue to consider frequency of absence in the past as a predictor of frequency of absence in the future" (p. 224). Keller (1983) found that prior absenteeism was positively related to absenteeism and was a significant predictor of it. Also, Breaugh's (1981) findings show that past absenteeism was a better predictor of future absenteeism than were work attitudes. Individual absenteeism records would therefore be regarded as useful tools not only to monitor present absenteeism but perhaps base control programmes on such expectations.

In conclusion, having examined the possible determining influence on absenteeism of a change in sick pay policy and of a negative incentive bonus scheme it was found that the more favourable terms of sick payment as from the first day of sickness absence appeared to increase absenteeism. Penalizing employees for exceeding an arbitrary degree of absenteeism did not appear to be an effective measure to decrease absenteeism, at least not in the short-term and company wide. However, a subpopulation of employees with more than five years service duration showed a definite decrease in the number of people who were not subject to the penalty as their GAR remained below the set level of three percent. Only increased age and length of service, among a group of variables which included number of dependents, job grade and excess overtime worked, appeared to be associated with lower levels of absenteeism as concluded from a comparison of a group of employees with the highest absence and a group manifesting the lowest absence.

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CHAPTER 7

RESTRICTIONS AND RECOMMENDATIONS

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7.1 Restrictions of the study

Utilisation of absence data from only one industrial factory was the major restriction of the study, and this implies limited application of the findings. Gabriel SA (Pty) Ltd is a mechanical engineering company manufacturing consumer goods, namely shock absorbers, struts and gas springs. The labour force was largely composed of coloured employees. The results obtained from the study would be of primary interest to Gabriel management. For future research it may be preferred to take a wider representative sample of industrial firms. Type of sample would be at the researcher's discretion to meet specific study aims. Sampling may be by industrial area, by classification of industry, size of company, employment of health personnel, company policy and other criteria not given, or a combination of these.

7.1.1 Hypothesis 1

It was not always possible to determine when an employee had taken annual leave. Gabriel SA (Pty) Ltd follows a system of annual "shut-down" when no manufacturing takes place over the December/January period. This period is generally taken as annual leave by the vast majority of

employees. It is also a period when vitally needed maintenance takes place. For this to occur the maintenance personnel and possibly other factory workers do not take annual leave at this time. For the first year of the study, it was not possible to determine if an employee had worked over this period or not, apart from having to refer to weekly clock cards. If an employee had worked, but was recorded as on leave, those potential working hours would not have been included in the calculation of absence rates. This would give a lower absence rate. However, the Sickness Absence Rate, Sickness Absence Frequency Rate and One Day Sickness Absence Frequency Rate were already low for these two months so it was felt that the exclusion of these working hours would not have a noticeable affect.

Riordan (1988a) researched the effect of two types of sick pay policy on the duration of sickness absence taken. The interpretation of the effect of change in sick pay policy at Gabriel may have been limited by not recording sick absence by one day, two days, three days and longer absence episodes. This information might have provided a more descriptive change in absence behaviour, by those employees with less than five years service. Absence taking would possibly have been more clearly typified by more frequent absences of shorter duration.

Along a similar vein, it might have proved interesting to have recorded unauthorised absence for the sample populations. One would expect to find a concomitant

decrease in the Unauthorised Absence Rate as Sickness Absence Rate increased.

The size of the "comparison of trend" sample population group was very small restricting its use as a comparison group. Ideally, a larger representative control group should have been used. It was not possible to find a larger control population group from Gabriel. To have a control population it would be necessary to find another mechanical engineering factory, employing a similar work force, with similar working conditions and conditions of employment, and a compatible sick leave and sick pay policy to control for the changes under study.

7.1.2 Hypothesis 2

The negative incentive bonus scheme was operative for only one year. A study on such a scheme is more informative and reliable when conducted over several years. To increase the value of the results so far obtained, the aggregated Gross Absence Rate for the year immediately following the cessation of the negative incentive bonus scheme should be analysed to determine any further changes in the absence rates.

The use of a control group would again be recommended to rule out other potentially influencing factors. It might have been possible to have divided the factory into a sample population and a control group with management approval. However, the workers would probably not agree to

a situation where some would receive a smaller bonus based on absence behaviour.

7.1.3 Hypothesis 3

To increase confidence in the results obtained for the third hypothesis, the size of the high absence and low absence sample populations should have been larger. Initially, each sample population group consisted of fifty employees, but this number was reduced to thirty-eight and forty-one when the female employees were excluded. With hindsight, fifty or more male employees with the highest Gross Absence Rates, and fifty or more male employees with the lowest Gross Absence Rates should have formed the two sample population groups.

Of the potentially determining variables, difficulty was experienced in obtaining a complete record of the number of weeks excess overtime worked, and with the distribution of skilled workers for job grade. Unfortunately, nine weeks of payroll records, from which number of weeks excess overtime worked was extracted, were unobtainable for the fifty-two week study year. Excess overtime worked in the weeks ending 26.2.1989; 5.3.1989; 12.3.1989; 19.3.1989; 26.3.1989; 2.4.1989; 14.5.1989; 21.5.1989 and 2.7.1989 were not included in the analysis. The lack of data for those nine weeks would not adversely affect the results obtained since there were another forty-three weeks of information used.

With larger samples there would be a greater proportion of skilled workers in both the high absence and low absence male sample populations. This would allow for Chi-Square analysis between skilled, semi-skilled and unskilled employees and not just between the semi-skilled and unskilled employees, as was done in the study.

It is appropriate to emphasize that all absence data and personal information pertaining to each employee was treated in the strictest confidence. From this study it is not possible to identify an individual employee and his or her absence behaviour. All data collected were collated for use in sample populations as being representative of the company Gabriel SA (Pty) Ltd and not of an individual. No harm would accrue to the employees of the company. Hopefully, knowledge gained may be a catalyst in reducing absence rates, which in turn would benefit the whole company and its employees by the subsequent reduction in company costs, inefficiency, overtime, poor customer relations and improved productivity, employee morale and company stability.

7.2 Recommendations

The aim of this study was to propose guidelines for the control of excessive absenteeism based on a study of factors which may influence absence behaviour patterns.

7.2.1 Hypothesis 1

Hypothesis 1 showed clearly that the introduction of sick

payment from the first day of sickness absence as opposed to payment from only the third of sickness absence, for Gabriel employees with less than five years service duration, significantly increased the number of sick days taken by them. Even if the upward spiral in absence taking levelled off, overall company absence would be at a higher rate than what is acceptable. Riordan (1988a) gives a level of acceptable worker absenteeism as lying between two and four percent "... that is inevitable and maybe even necessary for the healthy functioning of the employee and the organisation" (p. 105). The change in sick pay policy was predetermined by amendments to the Main Agreement for the Motor Industry (1988), and as such cannot be reversed. Management will need to assess the effectiveness of their existing approach to absence control, with a view to modifying what they have, or in fact, implementing an actual control programme. It should be emphasized that the Gabriel SA (Pty) Ltd Sick Leave and Sick Pay Policy given in Appendix E is not a control programme for company absence. In fact it is not unlikely that, once the policy has been in force for some years, a levelling off will have occurred which could well be at an acceptable level for management and employees.

Progressive disciplinary procedures for excessive absence behaviour need to be clearly stated and received by each employee on commencement of service with the company, so that employees are not in doubt as to the consequences of their absence behaviour. Present employees should also be

informed of updated company policies or the implementation of new policies and procedures. Disciplinary procedures for absence behaviour need to be separate from other disciplinary measures. This would emphasize to employees the importance management places on good attendance. A programme for controlling absence using the no-fault approach will be suggested later in the chapter.

7.2.2 Hypothesis 2

The second hypothesis stated that the negative incentive bonus scheme, based on individual absence behaviour, would significantly reduce the number of absence days in the company. This was not confirmed by the study results. There was, however, a reduction in the aggregated Gross Absence Rate when employees with over five years service duration were excluded from the sample population. This reduction was not significant, nor was the increased proportion of employees who did not exceed the penalty level in the second year significant. The concept of using an established bonus scheme to help control increasing absence behaviour may be acceptable. The scheme was limiting in that the average attender was not motivated into improving their absence behaviour. The penalty of losing a noticeable proportion of the annual bonus would only apply to a small number of employees with excessive Gross Absence Rates. Only five percent of employees lost more than ten percent of their annual bonus. Recommendations for Hypothesis 2 are:-

a) To repeat the negative incentive bonus scheme for a few years. Programmes operating over a year aggregation period require more than one year to assess their effectiveness in controlling absenteeism.

b) To incorporate a reward system that would motivate the average attender into improving their absence behaviour. Studies using positive reinforcement programmes for absence control have shown significant reductions in absence (Schmitz and Heneman, 1980).

c) To maintain a penalty system for the chronically absent employee.

d) To only use negative incentive bonus schemes or incentive programmes as temporary measures in controlling absence behaviour while a more comprehensive absence control policy is formulated.

e) To consider using schemes where the bonus or penalty is received after a shorter period, for example, one month.

7.2.3 Hypothesis 3

Hypothesis 3 was only partially confirmed. The sample population of fifty employees with the highest Gross Absence Rates (mean = 12.2%; median = 10.2%) were significantly younger (median values; 27 years compared to 32 years), had a significantly shorter duration of service (median values; 3 years compared to 8 years), worked significantly fewer weeks of excess overtime (median values; 3 weeks compared to 4 weeks excess overtime), and

were of a significantly lower job grade (A2 - unskilled, compared to B2 - semi-skilled) than a group of fifty employees with the lowest Gross Absence Rates (mean = 0.8%; median = 0.9%). There was no difference in the distribution of number of dependents between the two groups. However, only age and duration of service were significantly lower when two-sample analysis was conducted on only the male employees of the high absence and low absence sample populations. In other words, it was the older (median = 32 years), longer serving (median = 8 years) male employee who demonstrated the lower absence rate, and the data suggested that he would be semi-skilled or skilled and working higher levels of overtime (median = 4 weeks of excess overtime worked during the year). Gabriel SA (Pty) Ltd experienced a period of unrest, during the latter half of 1990, resulting in the retrenchment of a large proportion of the hourly paid workforce. The majority of supervisory personnel, skilled employees and members of the quality control department remained. This does not bode well for absence behaviour at Gabriel. Particularly if one considers the results from this third hypothesis, where the younger male employee (median = 25 years), with the shorter service duration (median = 2 years) had the higher absence rates. This emphasizes the importance of implementing a clear employment and employee containing policy as part of an absence control policy, and the need to create a positive attendance culture.

This will not be easy when working with employees who have no strong commitment to the company, and who are more than likely mistrustful of a company which has twice previously (1990 and 1982/3) retrenched large numbers of the workforce. The prevailing poor economic climate may influence absence behaviour, in that employees may not put their jobs at risk by being frequently absent. It is recommended that management consider the reemployment of those who have been retrenched, owing to their longer service record and knowlege of the company. It is suggested that management not allow the occurrence of one aggravating episode to prevent them from rehiring an otherwise good working employee. Obviously, an employee with a poor absence record would not be suitable for reemployment, as indicated in the text.

On the basis of a large number of articles and references on absence behaviour and control the no-fault approach is recommended for a possible absence control programme for Gabriel SA (Pty) Ltd.

Tustin (1989) in his article gave a detailed account explaining how the no-fault absenteeism control strategy can be incorporated into South African company situations.

According to Kuzmits (1981) a "no-fault" system recognises the inevitability of occasional absence, avoids the supervisory dilemma of judging which absences are excused and which are unexcused, provides a built-in reward system, and offers

counselling for individuals with unusually high absence rates. The no-fault absenteeism system eliminates fault as a basis for determining whether an absence or tardiness is to be excused or unexcused. Using the no-fault approach, absences are defined in terms of "occurrences" (Tustin, 1989, p. 29).

Every absence, regardless of its length, is recorded as one occurrence, or point. This frees the employee from having to justify his absence by obtaining a sick certificate (even if he were not ill) in order for him to receive sick pay. Management is freed from having to determine whether to authorise the employee's absence or not. The need for doctor's sick certificates and other forms of evidence are now eliminated. Carter (1975), expresses a frank opinion concerning the effectiveness of sick certificates. He states that "... it is becoming apparent that certification of absence attributed to sickness is a waste of time, energy and resources. It does little to control either individual absences or the general level of absence attributed to sickness" (p. 334). Other more recent writers express similar feelings.

Employees who fail to inform their supervisors in advance of their absence, for example by use of the telephone or message sent via a fellow employee, are penalized more heavily in the no-fault approach. The "no-call" is charged with two occurrences for each incident because of the additional inconvenience it causes to production (Tustin, 1989, p. 29).

When an employee reports late for work, but within ten minutes of the scheduled starting time, this tardiness can be counted as one-fourth an occurrence.

Partial absences are particularly frequent at Gabriel. An employee requests to visit the optician, dentist, gynaecologist, or to attend to family or business matters and if approved receives payment for that time spent away from work. When an employee is more than ten minutes away from work, under the no-fault system, he receives a penalty of usually one-half occurrence. In this situation the employee has to decide whether the absence from work during working hours is worth receiving the penalty, and thereby reducing his number of available occurrences.

The no-fault policy allows for a limited number of absences to be defined as non-chargeable. Non-chargeable absences are caused by external factors beyond the control of the employee. Typically, these absences are limited to funeral leave, military leave, witness in court, approved Union business, hospital confinement and absence due to work-related injury. It is management's prerogative to designate what form of absences will be defined as non-chargeable (Tustin, 1989, p.30).

Rewards for good attendance

Employees are able to "work off" bad attendance. For each month of perfect attendance, one occurrence is deducted from the employee's attendance record. This provision enables employees who are approaching a disciplinary action to avoid being

disciplined and improve their attendance records. In addition, some organisations allow employees to "bank" a maximum of two occurrences when the employee has perfect attendance (one point per month) and no record of absence. This provides an added incentive for perfect attendance.

The no-fault policy incorporates a decisive, progressive, four step disciplinary procedure. The system is administered according to the total number of occurrences accumulated by an employee within a consecutive twelve month period, beginning with the employee's first occurrence or fraction of an occurrence (Tustin 1989, p. 31).

Corrective discipline is usually administered according to the following regime:-

- Three occurrences (points) : Verbal warning
- Five occurrences (points) : Written warning
- Seven occurrences (points) : Final warning
- Twelve occurrences (points): Discharge

There are many advantages to the no-fault approach:-

- Adequate, well-defined guidelines, covering multiple forms of absenteeism.
- Fair administration: The no-fault policy is fair owing to its objective standards, uniform administration, progressive disciplinary procedures, and it provides the employee with an opportunity to improve on his absence record through perfect attendance.

- Ease of administration, particularly with computerised records and access control.
- Rewards good attendance.
- Weekly/monthly reports showing only employees who have taken occurrences in the immediately preceding twelve month period allows for non-disciplinary counselling prior to traditional progressive disciplinary action.
- Lower absenteeism rate: Research conducted in the U.S.A. indicates that the no-fault policy causes a decrease in the absenteeism rate. In one company absence rates dropped from 6.7 percent to 1.1 percent after a no-fault policy was introduced and forty percent of the work force had perfect attendance during a twelve month period (Olson & Bangs, 1984).
- Sick leave abuse: The "chronic" absentee with many one-day absences will quickly collect multiple occurrences and be subject to disciplinary action. The employee with genuine incapacitating illness will not be penalised to the same extent.
- Finding of replacements: Owing to the two occurrences charged for a "no-call", supervisors spend less time at the beginning of each shift finding replacements to start work groups.

There are, however, some potential drawbacks to consider:-

- The no-fault approach is cut-and-dried. All employees must be treated the same, notwithstanding extenuating circumstances.

- An occurrence is defined as an absence of any length and this may encourage longer absence periods.
- There may be similar abuse of occurrences as with sick leave days.
- The no-fault approach may meet with union resistance, misunderstanding and a reluctance to change from the familiar sick leave and sick pay system.

The no-fault policy will only achieve success if it meets an organisations's particular needs. There are several reasons for recommending no-fault absence approach, the most important one being the provision of free time for the employee. Employees who are frequently absent will justify their absence with explanations that indicate a need for free time (Morgan and Herman, 1976). It is widely acknowledged that sick leave may be taken for other reasons besides illness. Secondly, eliminating fault from absence occurrence is motivating and is bound to improve employee relations and morale. No-fault is a concept that may prove to be the necessary catalyst for reducing absence taking in the conpany. Thirdly, the employee is totally responsible for how he uses his allocated occurrences, and the disciplinary measures following abuse of the system are clear. A decisive disciplinary procedure is vital for controlling absence taking of the chronic offender. Lastly, it is a technique that shows potential for offering management a sound, relatively inexpensive system for managing and controlling absenteeism.

7.3 Summary

To summarise, this study has shown that the introduction of sick pay from the first day of sickness absence, where previously employees with less than five years service duration received sick pay from only the third day of sickness absence, resulted in significantly higher levels of absenteeism using the measures Sickness Absence Rate, Sickness Absence Frequency Rate and One Day Sickness Absence Frequency Rate. Non-industrial council employees with less than five years service duration acted as a "comparison of trend" sample population group in that they received sick pay benefits from the first day of sickness absence regardless of length of service. Results showed no significant increase in absence behaviour in this group over the two year study period, strenghthening the claim that the introduction of sick payment from the first day of sickness absence tends to increase the number of sick days taken by employees affected by the change in sick pay policy. The sick pay policy remained unchanged for employees with over five years service duration and they were therefore not included in the study.

The introduction of a penalty system, using a negative incentive bonus scheme, based on individual Gross Absence Rate was shown not to significantly reduce the number of absence days taken in the company, when the scheme was in effect. When employees with less than five years service duration were excluded from the sample population, a decrease in the aggregated Gross Absence Rates was experienced, but this was not found to be

significant. The negative incentive bonus scheme was discontinued after one year. This is unfortunate since any significant effects from such a scheme may only be felt following a second year when employees would have experienced a shortfall in their annual bonus and be motivated to improve on their absence behaviour for the next year. The decrease in the aggregated Gross Absence Rates indicate some potential benefit of the scheme, and the fact that the proportion of employees not exceeding the penalty level of 3% increased by 16.9% supports this.

Lastly, a sample population of fifty employees with the highest Gross Absence Rates showed that they were significantly younger, were employed with the company for a significantly shorter period of time, worked significantly fewer weeks of excess overtime and were composed of a significantly higher proportion of unskilled workers than fifty employees with the lowest Gross Absence Rates. Number of dependents was shown to be proportionately the same for the two groups. However, when the female employees were excluded from the two groups, the male sample population with the higher Gross Absence Rates was only significantly younger and employed for a significantly shorter period of time than the male sample population with the lower Gross Absence Rates. Among these males, the variables number of weeks excess overtime worked, job grade, and number of dependents were not found to show significant differences in their distribution. These results appear to indicate that the older, longer serving male employee will maintain lower absence rates, possibly as a result of greater job responsibilty, conformity to company regulations and company loyalty.

Over the two year study period company Gross Absence Rate increased by 14.2% and Sickness Absence Rate increased by 22.1%. For the year October 1987 to September 1988, there were four months when GAR fell below 5%, but for the following twelve months GAR fell below 5% on only one occasion (for the month of January 1989). Gross Absence Rate was never higher than 7.5% for any month. This information, together with the results for the first hypothesis, suggest increasing absenteeism at Gabriel SA (Pty) Ltd. When faced with a situation of increasing absenteeism, management has to ask the question whether the company would benefit from an absence control programme or not? It is concluded that Gabriel SA (Pty) Ltd will benefit from an absence control programme:-

- if an unacceptable absence problem really exists as determined by reliable longitudinal measures of absenteeism and a considered assessment of absenteeism costs.
- if the absenteeism problem is not simply a reflection of fluctuating external forces such as economic conditions of the labour market and seasonal variations in absence behaviour.
- if the causes of the absenteeism problem cannot be determined and dealt with in a more direct way.
- if an absence control programme suited to the specific needs of the company can be found.
- if the benefits of an absence control programme in terms of reduced absenteeism and other human intangibles outweigh the cost of the programme and the costs of the

> absenteeism problem itself, taking into account expected reductions in absence.
>
> (Stone, 1980, p. 84.)

The no-fault approach to absenteeism control (Tustin, 1989) was described in some detail and recommended as a control programme best suited to the needs of the company under study. However, it is management's decision whether they need such a programme and whether that type of programme would be the most suitable for the particular demands facing Gabriel SA (Pty) Ltd in the 1990s. The success of any new programme or policy introduced in the company would to a large extent depend upon the amount of time and effort taken in explaining such a programme to its employees.

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APPENDIX

APPENDIX A Amendments to the Main Agreement for the Motor Industry. Applicable from 29.08.1988.

APPENDIX B Main Agreement for the Motor Industry. 29.08.1986.

APPENDIX C General Incentive Bonus. Terms and Conditions 1988/1989.

APPENDIX D General Incentive Bonus. Terms and Conditions 1987/1988.

APPENDIX E Gabriel Sick Leave and Sick Pay Policy.

APPENDIX F Basic Conditions of Employment Act. Act No. 3, 1983.

APPENDIX G Gabriel Overtime Policy

APPENDIX H Paterson Job Evaluation Method. A simple outline.

APPENDIX I Hypothesis 1 - Employee Absence Record.

APPENDIX J Hypothesis 2 - Aggregate Gross Absence Rate (GAR) for Negative Incentive Bonus Scheme Population.

APPENDIX K Hypothesis 3 - Gabriel Hourly Paid Sample Population Employees.

(c) Voeg die volgende nuwe subklousule (97) (n) in:

"(n) komponente uitmekaar haal of stroop, maar moet die volgende uitsluit:

Ewenare, ratkaste, volledige enjins, kragstuurmeganismes, komponente wat deur rekenaars beheer word, kontroleertoestelle op voorwielaandrywings (transasse);".

3. KLOUSULE 14.—DIENSBEËINDIGING

In subklousule (1), vervang die woord "skof" deur die woord "week".

4. KLOUSULE 21.—SPESIALE BEPALINGS BETREFFENDE WAGTE

In subklousule (3), vervang die syfer "R74,25" deur die syfer "R100,24".

5. KLOUSULE 25.—ONTWIKKELINGSFONDS VIR DIE MOTORNYWERHEID

(1) In subklousule (1) (a), skrap die uitdrukking "BR".

(2) In subklousule (1) (b), skrap die uitdrukking "TVL".

(3) Voeg die volgende nuwe subklousule (1) (c) in:

"(1) (c) Elke werkgewer in Streek BR moet voor of op die 10de dag van elke maand aan die sekretaris van die betrokke Streekraad 'n heffing van 15c per week stuur vir die Ontwikkelingsfonds vir die Motornywerheid vir elke werknemer ten opsigte van wie die werkgewer die Raadsheffing ingevolge klousule 11 van hierdie Afdeling betaal.".

(4) Voeg die volgende nuwe subklousule (1) (d) in:

"(1) (d) Elke werkgewer in Streek TVL, moet voor of op die 10de dag van elke maand aan die sekretaris van die betrokke Streekraad 'n heffing van 30c per week stuur vir die Ontwikkelingsfonds vir die Motornywerheid vir elke werknemer ten opsigte van wie die werkgewer die Raadsheffing ingevolge klousule 11 van hierdie Afdeling betaal.".

6. KLOUSULE 31.—SIEKTEVERLOF

(1) In subklousule (1), skrap die uitdrukking "maar behoudens subklousule (2) hiervan".

(2) Skrap subklousule (2).

7. KLOUSULE 34.—GEBEURLIKHEIDSRESERWE

In subklousule (2), voeg die volgende nuwe paragraaf (iii) in:

"(iii) behoudens paragraaf (ii) moet enige geld wat aan die Raad verbeur word in die geval van 'n bevoordeelde wat 'n lid was van òf die Motor Industry Employees' Union of South Africa òf die National Union of Metalworkers of South Africa in afsonderlike rekenings van die Raad gekrediteer word en as onderskeidelik Gebeurliksheidsreserwerekening 'A' en Gebeurlikheidsreserwerekening 'C' bekend staan.".

8. KLOUSULE 35.—ADDISIONELE VAKANSIEBESOLDIGING VIR VAKLEERLINGE

(1) Voeg die uitdrukking "en kwekelinge wat opleiding ondergaan kragtens die Wet op Mannekragopleiding, 1981," in na die woord "vakleerling" oral waar dit in hierdie klousule voorkom.

(2) In subklousule (1), vervang die syfers "R3,50", "R5,00", "R5,50" en "R7,00", deur onderskeidelik die syfers "R4,50", "R6,00", "R6,50" en "R8,50".

9. Voeg die volgende nuwe klousules 39 en 40 in:

"KLOUSULE 39.—BETALING TEN OPSIGTE VAN PERSONEELVERMINDERING

Ondanks andersluidende bepalings in hierdie Ooreenkoms, moet 'n werkgewer wanneer 'n werknemer se diens beëindig word as gevolg van personeelvermindering, aan so 'n werknemer, benewens enige ander betaling wat hom mag toekom in plaas van kennis van diensbeëindiging, 'n bedrag betaal wat gelyk is aan een week se loon vir elke voltooide jaar diens by dieselfde werkgewer.

10. KLOUSULE 40.—HERSIENING VAN LONE

Die lone in hierdie Ooreenkoms voorgeskryf is bedingbaar deur die werkgewersorganisasies en die vakbonde op 'n jaarlikse grondslag gereken vanaf 29 Augustus 1988.

(c) Insert the following new subclause (97) (n):

"(n) dismantles or strips down components but shall exclude—

differentials, gearboxes, complete engines, power steerings, components controlled by computerisation, control devices on front-wheel drives (trans-axles);".

3. CLAUSE 14.—TERMINATION OF SERVICE

In subclause (1), substitute the word "week's" for the word "shift's".

4. CLAUSE 21.—SPECIAL PROVISIONS RELATING TO WATCHMEN

In subclause (3), substitute the figure "R100,24" for the figure "R74,25".

5. CLAUSE 25.—MOTOR INDUSTRY DEVELOPMENT FUND

(1) In subclause (1) (a), delete the expression "BR".

(2) In subclause (1) (b) delete the expression "TVL".

(3) Insert the following new subclause (1) (c):

"(1) (c) Every employer in Region BR shall not later than the 10th day of each month forward to the secretary of the Regional Council concerned a Motor Industry Development Fund levy of 15c per week for every employee in respect of whom the employer pays the Council levy in terms of clause 11 of this Division.".

(4) Insert the following new subclause (1) (d):

"(1) (d) Every employer in Region TVL shall not later than the 10th day of each month forward to the secretary of the Regional Council concerned a Motor Industry Development Fund levy of 30c per week for every employee in respect of whom the employer pays the Council levy in terms of clause 11 of this Division.".

6. CLAUSE 31.—SICK LEAVE

(1) In subclause (1), delete the expression "but subject to the provisions of subclause (2) hereof.".

(2) Delete subclause (2).

7. CLAUSE 34.—CONTINGENCY RESERVE

(1) In subclause (2), intsert the following new paragraph (iii):

"(iii) subject to paragraph (ii), any money forfeited to the Council shall, in the case of a beneficiary who was a member of either the Motor Industry Employees' Union of South Africa or the National Union of Metalworkers of South Africa, be credited separately in the books of account of the Council in accounts to be styled respectively the A Contingency Account and the C Contingency Account.".

8. CLAUSE 35.—ADDITIONAL HOLIDAY PAY FOR APPRENTICES

(1) Insert the expression "and trainees undergoing training under the Manpower Training Act, 1981" immediately after the word "apprentice" wherever it appears in this clause.

(2) In subclasue (1), substitute the figures "R4,50", "R6,00", "R6,50" and "R8,50", respectively for the figures "R3,50", "R5,00", "R5,50", and "R7,00".

(9) Insert the following new clauses 39 and 40:

"CLAUSE 39.—RETRENCHMENT PAY

Notwithstanding anything to the contrary contained in this Agreement, an employer shall whenever an employee's services are terminated for the reason that he is retrenched, pay to such an employee, in addition to any payment that may be due in lieu of notice of termination of services, a sum equal to one week's wages for each completed year of service with that employer.

10. CLAUSE 40.—REVISION OF WAGES

The wages prescribed in terms of this Agreement shall be negotiable by the employers' organisations and the trade unions on a yearly basis reckoned from 29 August 1988.

Gabriel® SA (Pty) Ltd.
Co. Reg. No. 62/02926/07

APPENDIX A

memorandum

FROM:

TO: ALL DEPARTMENT HEADS & STAFF

REF: EG/vb DATE: 16.9.88.

Amendments to the Main Agreement for the MOTOR INDUSTRY

Several significant amendments to the Main Agreement for the Motor Industry have been gazetted and apply from 29 August 1988. Some of the amendments to date are as follows :

i) TERMINATION OF SERVICE

All hourly-paid staff are now subject to a notice period of one week on either side. Such notice must always be in writing. (Previously one shift)

ii) SICK LEAVE

All hourly-paid staff will now qualify for paid sick leave from day one of absence on sick leave. (Previously day three) A valid doctor's certificate must be produced in all cases of absence for reasons of illness in order to be considered for paid sick leave.

A maximum of 10 working days' sick leave at full pay per 52-week period is currently permitted.

iii) SICK PAY FUND

Journeymen who contribute to a Sick & Accident Pay Fund may be paid by the fund R60 per day or 75% of their ordinary daily rate of pay, whichever is the lesser, in respect of any working day on which they were prevented from working by sickness or accident to a maximum of 30 days pay in any Fund year.

A valid doctor's certificate must be produced in all cases.

In addition to the above, several social security benefits have also been agreed upon. However, details thereof still have to be finalised and you will be advised of the new benefits as soon as final details are available.

Personnel Manager

(b) die werkgewer moet die besoldiging wat aan 'n los arbeider verskuldig is by diensbeëindiging betaal;

(c) "los arbeider" beteken iemand wat hoogstens drie dae in 'n bepaalde week en hoogstens 28 kalenderdae in 'n tydperk van ses maande by dieselfde werkgewer in diens is vir enigeen van die pligte in die omskrywing van "algemene werker" in hierdie Afdeling;

(d) "uurloon" beteken, vir die toepassing van hierdie klousule, die weekloon voorgeskryf vir 'n algemene werker in hierdie Ooreenkoms, gedeel deur 46.

Klousule 31.—Siekteverlof

(1) Iemand wat nie op siektebesoldigingsbystand kragtens 'n siektefondsskema van die Raad geregtig is nie en wat van sy werk afwesig is weens siekte of 'n ongeluk wat nie deur sy eie wangedrag of nalatigheid veroorsaak is nie en waarvoor daar nie skadeloosstelling ingevolge die Ongevallewet, 1941, betaalbaar is nie, is gedurende 'n tydperk van 52 agtereenvolgende weke diens by dieselfde werkgewer, met ingang van die datum van diensaanvaarding, maar behoudens subklousule (2) hiervan, geregtig op siekteverlof met volle besoldiging vir 'n tydperk van hoogstens—

(a) 10 werkdae as hy gewoonlik vyf dae per week werk; of

(b) 12 werkdae as hy gewoonlik vyf en 'n half dae per week werk.

(2) Iemand wat ingevolge subklousule (1) hiervan op siekteverlofbesoldiging geregtig is, moet soos volg deur sy werkgewer betaal word:

Vir twee dae waar die tydperk van afwesigheid tot vier agtereenvolgende werkdae strek;

vir drie dae waar die tydperk van afwesigheid tot vyf agtereenvolgende werkdae strek;

vir vyf dae waar die tydperk van afwesigheid tot ses agtereenvolgende werkdae strek;

vir die werklike aantal dae afwesig onderworpe aan 'n maksimum van 10 of 12 dae, na gelang van die geval, waar die tydperk van afwesigheid oor meer as ses agtereenvolgende werkdae strek:

Met dien verstande egter dat—

(i) geen sodanige persoon vir siekteverlof met besoldiging in aanmerking kom gedurende die eerste twee maande diens by 'n bepaalde werknemer nie;

(ii) siekteverlof met besoldiging nie geëis kan word nie, tensy die afwesigheid van werk meer as drie agtereenvolgende werkdae is;

(iii) siekteverlof met besoldiging nie kan oploop nie;

(iv) so 'n persoon gedurende die eerste 52 agtereenvolgende weke diens by dieselfde werkgewer op siekteverlofbesoldiging deur sy werkgewer geregtig is vir slegs een werkdag vir elke voltooide tydperk van vyf weke diens as hy gewoonlik vyf dae per week werk of vir elke voltooide tydperk van een maand diens as hy gewoonlik vyf en 'n half dae per week werk.

(3) (a) Iemand van wie sy werkgewer vereis om 'n doktersertifikaat of 'n ander bewys van siekte voor te lê, moet sodanige doktersertifikaat of ander bevredigende bewys voorlê binne hoogstens twee weke nadat hy terug is by die werk, anders verbeur hy sy reg op siektebesoldiging.

(b) Iemand wat 'n doktersertifikaat of ander bevredigende bewys van siekte voorlê onmiddellik nadat hy by die werk terug is, is geregtig op siekteverlofbesoldiging voor of op die eerste betaaldag nadat hy terug is by die werk.

Klousule 32.—Verbod op sessie van bystand

Geen bystand wat uit 'n werknemer se dienskontrak voortvloei, hetsy deur sy werkgewer of deur die Raad verskuldig, mag gesedeer word nie en alle sodanige sessies deur 'n werknemer is verbode. Geen beweerde sessie van sodanige bystand is vir die Raad of sy werkgewer bindend of word deur die Raad of sy werkgewer erken nie, tensy sodanige sessie ten opsigte is van geld wat voorgeskiet is uit die Gebeurlikheidsreserwe waarvoor in klousule 34 van hierdie Afdeling voorsiening gemaak word.

Klousule 33.—Vermoede

Benewens 'n tydperk wat 'n werknemer werklik in die diens van 'n werkgewer werk, word hy geag aldus te werk—

(a) gedurende 'n tydperk waarin hy, ooreenkomstig die vereistes van sy werkgewer, by of in 'n bedryfsinrigting teenwoordig is;

(b) gedurende 'n ander tydperk waarin hy by of in sodanige bedryfsinrigting teenwoordig is;

(c) gedurende 'n tydperk waarin hy verantwoordelik is vir 'n voertuig wat in die Nywerheid gebruik word, afgesien daarvan of sodanige voertuig gedryf word of nie;

(d) gedurende 'n hele pouse in sy werk as dit hom nie vrystaan om die perseel van sy werkgewer vir die hele pouse te verlaat nie; of

(b) the employer shall pay the remuneration due to a casual labourer on termination of his employment;

(c) "casual labourer" means a person who is employed on any of the duties enumerated in the definition of "general worker" in this Division by the same employer on not more than three days in any week and on not more than 28 calendar days in any period of six months;

(d) "hourly wage", for the purposes of this clause, means the weekly wage prescribed for a general worker in this Agreement, divided by 46.

Clause 31.—Sick leave

(1) Any person who is not entitled to sick pay benefits in terms of any sick fund scheme conducted by the Council, and who is absent from work through sickness or an accident not caused by his own misconduct or neglect which is not compensable in terms of the Workmen's Compensation Act, 1941, shall be entitled, during any period of 52 consecutive weeks of employment with the same employer, starting from the date he commenced such employment, but subject to the provisions of subclause (2) hereof, to sick leave on full pay for a period not exceeding—

(a) 10 working days if he normally works a five-day week; or

(b) 12 working days if he normally works a five-and-a-half day week.

(2) Any person who is entitled to sick leave pay in terms of subclause (1) hereof shall be paid by his employer for—

two days where the period of absence extends to four consecutive working days;

three days where the period of absence extends to five consecutive working days;

five days where the period of absence extends to six consecutive working days;

the actual number of days absent subject to a maximum of 10 or 12 days, as the case may be, where the period of absence exceeds six consecutive working days:

Provided however that—

(i) no such person shall qualify for paid sick leave during the first two months of employment with any one employer;

(ii) paid sick leave shall not be claimable unless the absence from work exceeds three consecutive working days;

(iii) paid sick leave shall not be accumulative;

(iv) during the first 52 consecutive weeks of service with the same employer such person shall be entitled to sick leave pay from his employer for only one working day for each completed period of five weeks of employment if he normally works a five-day week or for each completed period of one month of employment if he normally works a five-and-a-half-day week.

(3) (a) A person who is required by his employer to produce a medical certificate or other evidence of illness shall produce such medical certificate or other satisfactory evidence within a period of not more than two weeks after his return to duty or otherwise shall forfeit his right to sick pay.

(b) A person who produces a medical certificate or other satisfactory evidence of illness immediately on his return to duty shall be entitled to payment of sick leave not later than the first pay-day after his return to duty.

Clause 32.—Prohibition of cession of benefits

No benefit arising out of an employee's contract of service, whether due by his employer or the Council, shall be capable of being ceded, and any such cession by an employee is prohibited. No purported cession of such benefits shall be binding on or be recognised by the Council or his employer unless such cession is in respect of moneys advanced by the Contingency Reserve provided for by clause 34 of this Division.

Clause 33.—Presumptions

An employee shall be deemed to be working in the employ of an employer, in addition to any period during which he is actually so working, during—

(a) any period during which, in accordance with the requirements of his employer, he is present upon or in any establishment;

(b) any other period during which he is present upon or in any such establishment;

(c) any period during which he is in charge of any vehicle used in the Industry, whether or not it is being driven;

(d) the whole of any interval in his work if he is not free to leave the premises of his employer for the whole of such interval; or

APPENDIX C

GABRIEL SA (PTY) LTD

GENERAL INCENTIVE BONUS TERMS AND CONDITIONS 1988/89

1 ELIGIBILITY

All permanent monthly paid and hourly paid employees who are not currently on another company incentive bonus scheme will be eligible.

2 PAYMENT DATE

The bonus will be paid as soon as practicable after the company's audited financial statements for the relevant financial year (the Bonus Year) are available but will not be paid out later than the last day before shutdown in December.

3 BASIS OF CALCULATION

(a) The bonus will be calculated as a percentage of the employee's basic salary/wage ruling as at 1 September of the Bonus Year.

(b) The bonus will be reduced by the full percentage that the employee is absent over the Bonus Year calculated by dividing hours absent for reasons of illness (certificated and uncertificated) and accidents by total normal hours (excluding overtime) for each employee. Provided that this rule will only apply to employees whose rate of absenteeism so calculated exceeds 3,00%.

4 GUARANTEED MINIMUM

All statutory bonus payments to Industrial Council rated staff are guaranteed and will be included in any bonus payments under this scheme. A non-statutory bonus of 2% of annual salary is guaranteed for non-Industrial Council rated staff and will also be included in any bonus payments under this scheme.

5 NEW EMPLOYEES

Employees commencing after 1 October of the bonus year will receive a proportionate bonus pro rated to the number of full weeks of employment from the date of joining the company. In the case of Temporary employees who are placed on the permanent staff during the course of the Bonus Year, the date of joining the company as a Temporary will be regarded as the date of joining.

6 TERMINATIONS

Employees who leave the company for reasons other than death, disability or retirement before the end of the bonus year do not qualify for the bonus.

Employees who leave the company for reasons of death, disability or retirement before the end of the bonus year shall be eligible to receive a bonus pro rated from the beginning of the bonus year to the termination date.

In these circumstances the amount of the bonus will be based on the basic salary/wage ruling on the first day of the month of termination.

7 PENSION

The bonus is pensionable.

8 PAYE

PAYE will be deducted at the time of payment of the bonus.

9 OVERTIME

Overtime payments and Service Bonuses are not included in the calculation of the bonus.

10 RIGHT TO AMEND/WITHDRAW BONUS SCHEME

The Management of the Company retain the right to amend, suspend or withdraw the scheme at any time should circumstances warrant such action.

Gabriel SA (Pty) Ltd
SA (Edms) Bpk

Policy Statement

Number	B9
Page	1 of 2
Date	1 April 1988
Issue	SECOND

1 OVERTIME

1.1 Overtime must be kept to an absolute minimum and may only be worked if authorised in terms of this instruction. In those areas where overtime is regular and lengthy, consideration must be given to reducing it by increasing the level of operative staffing.

1.2 All operator overtime must be reported on in the Managing Director's Bi-Monthly Report under the section headed 'Organisation'. Budget, forecast and actual overtime hours will be shown for the month and for the year to date, and will be broken down to area.

1.3 The authorisation to work overtime is contained in the daily/weekly overtime record sheet. These sheets are submitted to the security gate after they have been signed by the persons responsible for authorising overtime. Once these sheets have served their purpose at the security gate they are sent to the Personnel Department where they will be retained in date order, for a period of twelve months.

1.4 All overtime worked must be supervised and where significant overtime is to be worked a responsible manager/controller should be present to perform such supervision.

1.5 A weekly summary of actual excess overtime worked must be produced. (Excess overtime for this purpose is overtime in excess of 10 hours per week for all employees). This summary is routed to Personnel. The Personnel Manager is to take appropriate action for apparent excessive overtime and record such action on the summary. Where the situation warrants it the Personnel Manager should advise the relevant Department Heads of excessive or prolonged overtime.

1.6 Managers are responsible for ensuring that the overtime limits as set out in Industrial Agreements and by statute are not exceeded. Excess overtime, as defined in Industrial Agreements or by statute, may not be authorised without an exemption certificate.

1.7 Managers are required to submit written requests for application for Exemption Certificates to the Personnel Department as soon as it is known that excess overtime will be necessary. The approximate time taken to obtain an Exemption Certificate is one month.

1.8 Application to the Industrial Council for Exemption Certificates will be made by the Personnel Department and retained on file by them. Urgent applications which are obtained telephonically will be recorded and this record filed with the Exemption Certificates. Once the Certificate is obtained it will be attached to the relevant record of the telephonic request.

APPENDIX D

Gabriel®
SA (Pty) Ltd
SA (Edms) Bpk
Co. Reg. No. 62/02926/07

White Road, Retreat, Cape, S Africa
P.O. Box 214, Tokai 7966
Cape Town, 72-1007, 72-1057
5 26810 SA
Retreat, Cape
Fax No. (021) 75 7203

Your ref / U verw | Our ref / Ons verw

4 December 1987

Dear

GENERAL INCENTIVE BONUS 1987/88

We are pleased to confirm your participation in the General Incentive Bonus Scheme (G.I.B.) for the financial year ending 30 September 1988.

The G.I.B. has been established to give Gabriel staff members a special incentive to further their own and the company's growth and productivity.

HOW THE GENERAL INCENTIVE BONUS SCHEME WORKS

1 A number of key criteria related to productivity in this company have been identified. Each criterion is weighted and constitutes a portion of the total Productivity Index. Each criterion contains measured objectives relative to levels of performance from level 1 to level 10. The index for each criterion is obtained by multiplying the performance level by the weighting. The total Productivity Index (PI) is obtained by totalling up the scores on the individual criteria.

2 Where, at any time, a performance higher than level 10 is obtained for Order Fill, Direct Efficiency, Indirect Efficiency and Quality criteria, the actual level allocated to such a criterion will be extrapolated to calculate such performance as if no maximum upper level existed, provided that this rule will apply only in the last month of the Bonus Year.

3 Maximum payouts based on the level of performance and Productivity Index (P.I.) have been set and payment will be made based on the attainment of P.I. related to its corresponding level of performance. No pro rata payment will be made for P.I.'s achieved between performance levels. In such a case the P.I. at the lower performance level will apply. The attached sheet indicates the payout that will be made provided the targets are reached (Annexure A).

4 A monthly Productivity Matrix (or table) will be published for all staff to see how they are performing against the objectives. This matrix will show our average performance to date. The matrix for the 1987/88 year is attached.

5 The Bonus Year will be the period 1 October 1987 to 30 September 1988.

6 The base for all figures will be Gabriel S.A.'s audited financial statements for 1987/88.

TERMS AND CONDITIONS

The attached Terms and Conditions will apply for the purpose of determining the payment of the Bonus (Annexure B).

WORK PRODUCTIVELY

As you can see the rewards for your extra efforts are there for the taking. Provided that you work productively and strive to reach the objectives set in the matrix there is no reason why you should not earn a handsome bonus.

We wish you every success in making 1988 an outstanding year for Gabriel and for yourself.

Yours sincerely

E C R GUNNING
Personnel Manager

GABRIEL SA (PTY) LTD

APPENDIX D

GENERAL INCENTIVE BONUS
TERMS AND CONDITIONS

1 ELIGIBILITY

All permanent monthly paid and hourly paid employees who are not currently on another company incentive bonus scheme will be eligible.

2 PAYMENT DATE

The bonus will be paid as soon as practicable after the company's audited financial statements for the relevant financial year (the Bonus Year) are available but will not be paid out later than the last day before shutdown in December.

3 BASIS OF CALCULATION

The bonus will be calculated as a percentage of the employee's basic salary/wage ruling at 1 September of the Bonus Year.

4 GUARANTEED MINIMUM

All statutory bonus payments to Industrial Council rated staff are guaranteed and will be included in any bonus payments under this scheme. A non-statutory bonus of 2% of annual salary is guaranteed for non-Industrial Council rated staff and will also be included in any bonus payments under this scheme.

5 NEW EMPLOYEES

Employees commencing after 1 October of the bonus year will receive a proportionate bonus pro rated to the number of full weeks of employment from the date of joining the company. In the case of Temporary employees who are placed on the permanent staff during the course of the Bonus Year, the date of joining the company as a Temporary will be regarded as the date of joining.

6 TERMINATIONS

Employees who leave the company for reasons other than death, disability or retirement before the end of the bonus year do not qualify for the bonus.

Employees who leave the company for reasons of death, disability or retirement before the end of the bonus year shall be eligible to receive a bonus pro rated from the beginning of the bonus year to the termination date.

In these circumstances the amount of the bonus will be based on the basic salary/wage ruling on the first day of the month of termination.

7 PENSION

The bonus is pensionable.

8 PAYE

PAYE will be deducted at the time of payment of the bonus.

9 OVERTIME

Overtime payments are not included in the calculation of the bonus.

10 RIGHT TO AMEND/WITHDRAW BONUS SCHEME

The Management of the Company retain the right to amend, suspend or withdraw the scheme at any time should circumstances warrant such action.

OBJECTIVES MATRIX FOR GENERAL INCENTIVE BONUS SCHEME 1987/88

**** EXAMPLE ONLY ****

ORDER FILL			DIRECT EFFICIENCY	INDIRECT EFFICIENCY	QUALITY	COST REDUCTION INDEX	ABSENTEEISM	STOCK TURNOVER	STOCK ADJUSTMENT		
A.M.	O.E.	O.S.X.	STD DIR LAB HRS / DIR CLOCKED HRS x100	TOTAL OVERHEADS / SALES x100	NET SCRAP / F.G.R. MATERIAL x100	COST REDUCTION VALUE / PLANNED C.R. VALUE x100	ABSENTEE HRS / ATTENDED HRS x100	DAYS PER ANNUM R.M. & FIN GDS	STOCK LOSS/INPUT x100 R.M. & FIN GDS		
X	X	X									
96.66	97.32	86.37	54.00	40.30	2.26	80.77	3.62	91.0	1.41	PERF TO 30/9/88	
97.00	97.00	90.00	60.00	38.00	2.00	100.00	3.00	74.0	0.60	10	LEVEL
96.00	96.00	89.50	58.00	39.00	2.10	96.00	3.05	78.0	0.70	9	
95.00	95.00	89.00	56.00	40.00	2.20	92.00	3.10	82.0	0.80	8	
94.00	94.00	88.50	54.00	41.00	2.30	88.00	3.15	86.0	0.90	7	
93.00	93.00	88.00	52.00	42.00	2.40	84.00	3.20	90.0	1.00	6	
92.50	92.50	87.50	50.00	43.00	2.50	80.00	3.25	92.5	1.10	5	
92.00	92.00	87.00	48.00	44.00	2.60	76.00	3.30	95.0	1.20	4	
91.50	91.50	86.50	46.00	45.00	2.70	72.00	3.35	97.5	1.30	3	* * *
91.00	91.00	86.00	44.00	46.00	2.80	68.00	3.40	100.0	1.40	2	
90.50	90.50	85.50	42.00	47.00	2.90	64.00	3.50	102.5	1.50	1	
90.00	90.00	85.00	40.00	48.00	3.00	60.00	3.60	105.0	1.60	0	
9	10	2	7	8	7	5	0	5	1	LEVEL ACHIEVED	
10	10	5	20	20	10	5	10	5	5	100 X WEIGHT	
90	100	10	140	160	70	25	0	25	5	625	INDEX
										4	WEEKS BONUS

GENERAL INCENTIVE BONUS PAY OUT

P.I.	LEVEL	% OF ANNUAL BASIC SALARY/WAGE	APPROXIMATE BONUS
1000	10	12%	6 weeks pay
900	9	11%	5½ weeks
800	8	10%	5 weeks
700	7	9%	4½ weeks
600	6	8%	4 weeks
500	5	7%	3½ weeks
400	4	6%	3 weeks
300	3	4%	2 weeks
200	2	2%	1 week
100	1	2%	1 week
0	0	2%	1 week

Guaranteed minimum 2% of annual basic salary/wage (1 week's pay). No pro rata payout for scores between levels. P.I. will be rounded off to lower level.

(ii) During the first 52 consecutive weeks of service with the Company the employee will only accumulate sick leave at the rate of one working day for each completed period of five weeks of employment;

(iii) The period of absence from work must exceed two consecutive working days before sick pay is claimable. The Company will, however, grant paid sick leave from the first day of absence to an employee who has been in continuous employment with the Company for five full years and who produces a valid doctor's certificate on his return to work;

(iv) Industrial Council rated employees who have been in continuous employment with the company for five full years are eligible for 30 working days' sick leave on full pay during each sick leave cycle of 36 consecutive months' employment with the company calculated from the start of the sixth year of employment. Such sick leave in excess of 10 days per year will only be granted in advance at the discretion of the Department Head concerned and only in the case of serious illness. It is not intended for minor illnesses requiring short periods of sick leave. In all other cases employees will not be permitted to accumulate sick leave and a maximum of 10 working days' sick leave per year will be allowed.

(v) A valid doctor's certificate must be produced in all cases of absence for reasons of illness in order to be considered for paid sick leave.

3.2.4 Unutilised sick leave entitlements in any 3 year sick leave cycle may not be carried forward to a new sick leave cycle. There is no additional qualifying period from one 3 year sick leave cycle to the next.

3.2.5 Journeyman and Apprentices (as defined in the Main Agreement) who contribute to Sick Pay Funds are granted 10 working days' sick leave per year from date of commencement with the Company. A condition of this entitlement is that all amounts claimed from Sick Pay Funds are paid over to the Company until exhaustion of the aforementioned 10 days.

3.2.6 No sick leave in excess of the above entitlements may be granted without prior written approval from the Personnel Manager.

3.3 COMPANY GRADED EMPLOYEES

Unchanged - see new policy

3.3.1 Both hourly-paid and monthly-paid company graded employees are eligible for sick leave as prescribed in the Basic Conditions of Employment Act.

SECTION 3 - SICK LEAVE

3.1 CATEGORIES

3.1.1 For the purpose of Sick Leave Plans, employees are divided into two categories, viz Industrial Council Rated employees and Company Graded employees.

3.2 INDUSTRIAL COUNCIL RATED EMPLOYEES

3.2.1 Unless otherwise stated in this Instruction, employees falling under the jurisdiction of the Main Agreement for the Motor Industry will be eligible for sick leave as prescribed in the Agreement.

3.2.2 The Agreement states, inter alia, that during any period of 52 weeks with the same employer the employee will be allowed a maximum of 10 working days sick leave if he normally works a five day week.

3.2.3 Provisos for the payment of sick leave include:

(i) No employee shall qualify for paid sick leave during his first two months of employment with the company;

(ii) During the first 52 consecutive weeks of service with the Company the employee will only accumulate sick leave at the rate of one working day for each completed period of five weeks of employment;

(iii) Industrial Council rated employees who have been in continuous employment with the company for five full years are eligible for 30 working days' sick leave on full pay during each sick leave cycle of 36 consecutive months' employment with the company calculated from the start of the sixth year of employment. Such sick leave in excess of 10 days per year will only be granted in advance at the discretion of the Department Head concerned and only in the case of serious illness. It is not intended for minor illnesses requiring short periods of sick leave. In all other cases employees will not be permitted to accumulate sick leave and a maximum of 10 working days' sick leave per year will be allowed.

(iv) A valid doctor's certificate must be produced in all cases of absence for reasons of illness in order to be considered for paid sick leave.

3.2.4 Unutilised sick leave entitlements in any 3 year sick leave cycle may not be carried forward to a new sick leave cycle. There is no additional qualifying period from one 3 year sick leave cycle to the next.

3.2.5 Journeyman and Apprentices (as defined in the Main Agreement) who contribute to Sick Pay Funds are granted 10 working days' sick leave per year from date of commencement with the Company. A condition of this entitlement is that all amounts claimed from Sick Pay Funds are paid over to the Company until exhaustion of the aforementioned 10 days.

3.2.6 No sick leave in excess of the above entitlements may be granted without prior written approval from the Personnel Manager.

3.3 COMPANY GRADED EMPLOYEES ↓ unchanged

3.3.1 Both hourly-paid and monthly-paid company graded employees are eligible for sick leave as prescribed in the Basic Conditions of Employment Act.

3.3.2 Company-graded hourly paid employees are eligible for 30 working days' sick leave on full pay during each sick leave cycle of 36 consecutive months' employment with the company. Provided that during the first 12 consecutive months of employment a weekly-paid employee will not be entitled to sick leave on full pay at a rate of more than one working day for each completed period of five weeks of employment.

3.3.3 Monthly paid employees are eligible for 66 working days' sick leave on full pay during each sick leave cycle of 36 consecutive months' employment with the company. Provided that during the first 12 consecutive months of employment a monthly-paid employee will not be entitled to sick leave on full pay at a rate of more than two working days for each completed month of employment up to a maximum of 22 days.

3.3.4 Unutilised sick leave entitlements in any 3 year sick leave cycle may not be carried forward to a new sick leave cycle. There is no additional qualifying period from one 3 year sick leave cycle to the next.

3.3.5 Any monthly-paid employee who is absent from work for more than two consecutive working days must produce a valid doctor's certificate in order to receive sick leave pay. However the company has the right to request a valid doctor's certificate for all absences in certain circumstances as laid down in the Act. Under normal circumstances, however, the company will make sick leave payments for absences of less than 3 working days without evidence of a valid doctor's certificate.

3.3.6 Company-graded hourly paid employees are required to produce a valid doctor's certificate in all cases of absence for reasons of illness in order to be considered for paid sick leave.

3.3.7 No sick leave in excess of the above entitlements may be granted without prior written approval from the Personnel Manager acting on the recommendation of the Department Head concerned.

3.3.8 Department Heads are required to submit a "Notification of Sick Leave" form whenever a monthly or hourly-paid company graded employee returns to duty after a period of sick leave. Where applicable a doctor's certificate must be attached to this form.

3.4 GENERAL

3.4.1 The Company may at any time require an employee who is on, or who has applied for sick leave, to submit himself for an examination by a medical practitioner or board nominated by the Company.

3.4.2 Sick leave on full pay will only be granted when proof has been produced to the satisfaction of management that the employee is prevented from performing his duties as a result of sickness which is not caused by wilful misconduct or gross negligence.

3.4.3 Sick leave will not apply to an employee who is "run down" in health, or who needs a change; annual leave is intended for this purpose.

(7) In this section "employer" includes—

(a) in the case of the death of an employer, the executor of his estate; or

(b) in the case of the insolvency of an employer or the liquidation of his estate or the transfer of his business, the trustee or liquidator or the new owner of the business,

if such executor, trustee, liquidator or new owner continues to employ that employee.

(8) For the purposes of this section a leave cycle shall be deemed to commence on—

(a) the date on which the employee entered the employer's service;

(b) a date one year prior to the commencement of this Act; or

(c) the date on which the employee under a provision of this Act or of a law repealed by this Act, or of the Mines and Works Act, 1956 (Act No. 27 of 1956), the Labour Relations Act, 1956 (Act No. 28 of 1956), the Wage Act, 1957 (Act No. 5 of 1957), or the Manpower Training Act, 1981 (Act No. 56 of 1981), last became entitled to annual leave on full pay,

whichever date is the latest.

(9) Subject to the provision of subsection (4) no employer shall agree with an employee to pay to him any amount in lieu of leave to which he is entitled in terms of subsection (1), or pay any such amount to him.

(10) This section shall not apply to a casual employee.

Sick leave.

13. (1) An employer shall grant an employee who is absent from work through incapacity—

(a) in the case of an employee who works not more than five days a week, not less than 30 working-days; or

[1]*(b)* in the case of any other employee, not less than 36 working-days,

sick leave in the aggregate on full pay during each period of 36 consecutive months for which the employee is employed by him (hereinafter referred to as a sick leave cycle): Provided that during the first 12 consecutive months of employment an employee shall not be entitled to sick leave on full pay at a rate of more than, in the case of an employee who works not more than five days a week, one working-day in respect of each completed period of five

1 Afrikaans text of paragraph (*b*) amended by Sec 4 of Act 27 1984

weeks of employment, and, in the case of every other employee, one working-day in respect of each completed month of employment.

(2) The amount to be paid in terms of subsection (1) to an employee in respect of a day's sick leave on full pay, shall not be less than the wage payable to him in respect of the time (excluding overtime) ordinarily worked by him on that day of the week.

(3) An employer shall not be bound in terms of subsection (1) to pay to an employee an amount in respect of any absence from work for a period covering more than two consecutive days, unless the employee produces a certificate signed by a medical practitioner stating the nature and duration of the employee's incapacity: Provided that if an employee has during any period of up to eight weeks received payment in terms of that subsection on two or more occasions without having produced such a certificate to his employer, his employer shall during the period of eight weeks immediately succeeding the last such occasion not be bound to pay the said amount to the employee in respect of any absence from work, unless he produces such a certificate.

(4) Where an employer is by or under a provision of any law required to pay fees for hospital or medical treatment in respect of an employee and he pays such fees in respect of any incapacity of an employee, the employer may set off the amount so paid against any payment which he has to pay in terms of subsection (1) to the employee in respect of sick leave because of such incapacity.

(5) The provisions of subsection (1) shall not apply in respect of —

(a) an employee at whose written request an employer makes contributions, at least equal to those made by the employee, to any fund or organization designated by the employee, which fund or organization guarantees to the employee in the event of his incapacity the payment to him of not less than the equivalent of his wage for 30 working-days in each period of 36 months of employment, if he works not more than five days a week, or 36 working-days in each such period, if he works six days a week;

(b) any period of incapacity of an employee in respect of which the employer is by or under a provision of any law required to pay to the employee an amount of not less than the equivalent of his wage;

(c) any casual employee.

(6) For the purposes of this section —

(a) any period during which an employee —

(i) is on leave by virtue of section 12 (1);

(ii) is on sick leave by virtue of subsection (1);

(iii) is absent from work on the instruction or at the request of his employer; or

(iv) is undergoing military training,

amounting in the aggregate in any sick leave cycle to not more than 30 weeks in respect of the periods referred to in subparagraphs (i), (ii) and (iii) plus up to 12 months of any period of military training referred to in subparagraph (iv) undergone in that sick leave cycle, shall be deemed to be employment with his employer;

(b) any continuous employment which an employee has had with the same employer at the commencement of this Act, shall be taken into account, and any sick leave on full pay granted by the employer to the employee during that period of continuous employment, shall be deemed to have been granted under this section;

(c) "incapacity" shall mean inability to work owing to any sickness or injury other than sickness or injury caused by an employee's own misconduct: Provided that any inability to work caused by an accident or a scheduled disease as defined in section 2 of the Workmen's Compensation Act, 1941 (Act No. 30 of 1941), shall only be regarded as incapacity during any period in respect of which no compensation is payable in terms of that Act.

Termination of contracts of employment.

14. (1) Whenever an employer or an employee intends terminating a contract of employment —

[1]*(a) during the first four weeks of employment, he shall give the other party one working-day's notice of termination of such contract: Provided that if any written contract of employment provides for a period of notice of equal duration for both parties which is longer than one working-day, notice shall in accordance with such contract be given over such longer period.*

[2]*(b)* at any time after the expiration of the first four weeks of employment, he shall give the other party, in the case of a weekly employee, one week's notice, and, in the case of a monthly employee, two weeks' notice of termination of such contact: Provided that if any written contract of employment provides for a period of notice of equal duration for both parties which is longer than one week, in the case of a weekly employee, or two weeks, in the case of a monthly employee, notice shall in accordance with such contract be given over such longer period.

1 Subparagraph (*a*) amended by Sec. 5 (*a*) of Act 27 1984
2 Afrikaans text of subparagraph (*b*) amended by Sec. 5 (*b*) of Act 27 1984

SECTION 3 - SICK LEAVE

3.1 CATEGORIES

3.1.1 For the purpose of Sick Leave Plans, employees are divided into two categories on the same basis as for Annual Leave, viz Industrial Council Rates employees and Company Graded employees.

3.2 INDUSTRIAL COUNCIL RATED EMPLOYEES

3.2.1 Unless otherwise stated in this Instruction, employees falling under the jurisdiction of the Main Agreement of the National Industrial Council for the Motor Industry will be eligible for sick leave as prescribed in the Agreement.

3.2.2 The Agreement states, inter alia, that during any period of 52 weeks with the same employer the employee will be allowed a maximum of 10 working days sick leave if he normally works a five day week.

The Company has agreed that this leave may be paid as follows:-

(i) a maximum of 1 working day sick leave where the period of absence extends to three consecutive working days,

(ii) a maximum of 2 working days sick leave where the period of absence extends to four consecutive working days,

(iii) a maximum of 3 working days sick leave where the period of absence extends to five consecutive working days,

(iv) a maximum of 5 working days sick leave where the period of absence extends to six consecutive working days,

(v) The actual number of days subject to a maximum of 10 working days sick leave where the period of absence exceeds six consecutive working days.

3.2.3 Provisos for the payment of sick leave include:

(i) No employee shall qualify for paid sick leave during his first two months of employment with the company;

1.9 Payment of overtime in respect of non-Industrial Council rated employees will only be made when it is obligatory in terms of statute.

1.10 Payment for overtime will be in accordance with the rates laid down by the Industrial Council Agreement or the Basic Conditions of Employment Act, or at a higher rate at the Company's option. Such higher rates require authorisation by the Managing Director. The rate currently applicable to non-Industrial Council rated employees is R24 000 per annum.

2 PROVISION OF MEALS AND TRANSPORT

2.1 In accordance with the relevant statutes the following rules will apply in respect of tea and meal breaks during overtime work and the provision of meals and transport:

2.1.1 For the overtime period 5.15 to 6.45 pm

No tea break will be taken. Instead 15 minutes extra pay will be added making a total of 1 3/4 hours' pay. No transport home will be provided.

2.1.2 For the overtime period 5.15 to 8.00 pm

A 30 minute meal interval will be taken. If one day's notice has been given tea only will be provided. If less than one day's notice has been given tea and a meal will be provided. The meal should be to the value of R2 at current canteen prices (or R3 non-canteen).

Transport will be provided if needed.

2.1.3 For the overtime period 5.15 to 10.00 pm

A 30 minute meal interval will be taken. Tea and a meal to the value of R2 at present canteen prices (or R3 non-canteen) will be provided, regardless of the period of notice given.

Transport will be provided if needed.

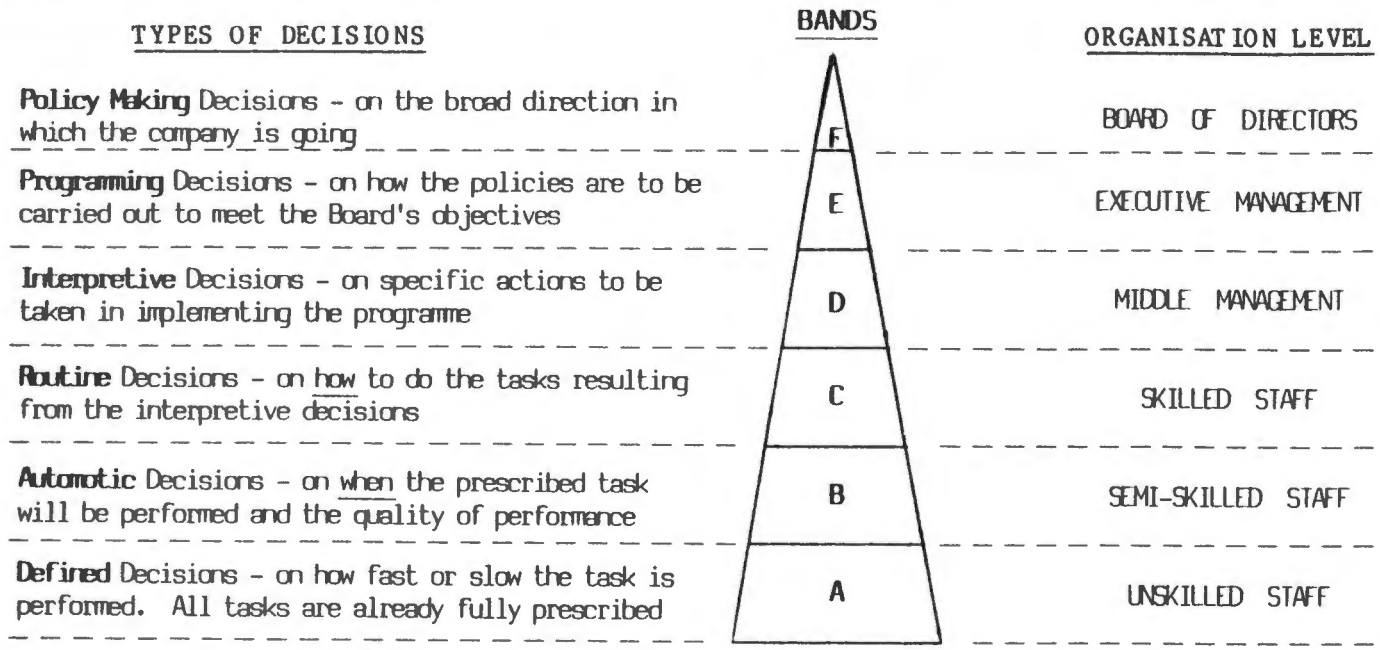
2.1.4 Any period outside of the above should be discussed with the Personnel Manager.

F V KEYWOOD
Managing Director

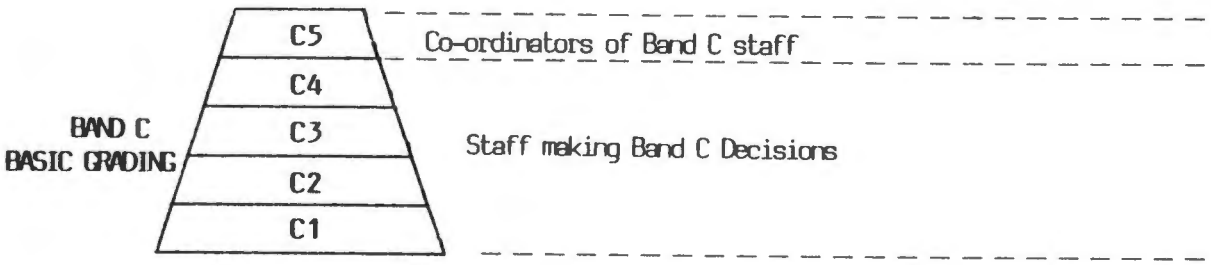
PATERSON JOB EVALUATION METHOD
A SIMPLE OUTLINE

The Paterson Job Evaluation Method is based on the view that all jobs, regardless of level, involve decisions. Higher graded jobs involve a higher type of decision making and therefore are more complex and difficult to perform than lower level jobs.

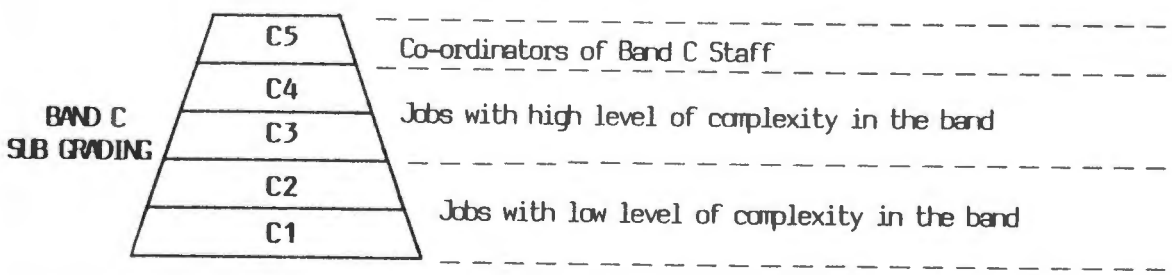
Six basic types of decisions define all jobs in an organisation and these can be classified as follows:



Within each band a further basic subdivision is made between jobs where people make decisions classified into that particular band, and jobs where people co-ordinate the activities of such people in that band. For example,



Based on certain criteria such as frequency of decision making, complexity of tasks, reporting relationships, degree of skill required, and length of activity cycle, jobs within a band can be further sub-graded in order to distinguish more clearly the degrees of complexity of jobs found within the band classification. For example



The Paterson Job Evaluation Method is the one used most often in South Africa. However, your job has been evaluated and graded in terms of its value to Gabriel. It is important to remember that the Method evaluates jobs not people. Merit Rating is used for rating the performance of people in their jobs.

HYPOTHESIS 1 - EMPLOYEE ABSENCE RECORD

Employee Number : .....
Department Code : .....
Date of Employment : .....
Date for Five Years Employment/
Termination of Service : .....
Age (as of 31.08.1987) : .....years
Service Duration (as of 31.08.1987) : .....years
Sex : .....
male - 1 female - 2
Race : .....
coloured - 1 black - 2 white - 3

YEAR	MONTH	SICK HOURS OF ABSENCE	NO OF NEW ABSENCES	NO OF ONE DAY ABSENCES	NORMAL WORK HOURS
1987	SEP				
	OCT				
	NOV				
	DEC				
1988	JAN				
	FEB				
	MAR				
	APR				
	MAY				
	JUN				
	JUL				
	AUG				
TOTAL					
1988	SEP				
	OCT				
	NOV				
	DEC				
1989	JAN				
	FEB				
	MAR				
	APR				
	MAY				
	JUN				
	JUL				
	AUG				
TOTAL					

Appendix J

HYPOTHESIS 2

AGGREGATE GROSS ABSENCE RATE (GAR) FOR NEGATIVE INCENTIVE BONUS SCHEME SAMPLE POPULATION

Employee Number : .....

Department Code : .....

Age (as of 28.09.1987) : .....years

Service Duration (as of 28.09.1987) : .....years

Sex : .....

male - 1 female - 2

Race : .....

coloured - 1 black - 2 white - 3

Aggregate GAR (28.09.87 - 2.10.88) : .....

Aggregate GAR (3.10.88 - 1.10.89) : .....

Appendix K

HYPOTHESIS 3

GABRIEL HOURLY PAID SAMPLE POPULATION EMPLOYEES

NAME : .....

EMPLOYEE NUMBER : .....

DEPARTMENT CODE : .....

SEX : .....

male - 1 female - 2

GROSS ABSENCE RATE (for year ending 1.10.1989) : .....%

Age (as of 3.10.1988) : .....years

Service Duration (as of 3.10.1988) : .....years

Job Grade (as of 3.10.1988) : .....

A1 - 1	B1 - 4	C1 - 8
A2 - 2	B2 - 5	C2 - 9
A3 - 3	B3 - 6	
	B4 - 7	

Weeks Excess Overtime : .....

Number of Dependents (as of 3.10.1988) : .....

9.03.1990